ONTARIO MINISTRY OF ENVIRONMENT
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REGULATIONS MADE BY THE COMMISSION

UNDER THE

ONTARIO WATER RESOURCES COMMISSION ACT, 1957

PLUMBING AND SEWERS

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REGULATIONS MADE BY THE COMMISSION UNDER THE ONTARIO WATER RESOURCES COMMISSION ACT, 1957

PLUMBING

INTERPRETATION

1.-(1) In these regulations,

1. "air gap", when used with reference to a supply system, means the unobstructed vertical distance through the free atmosphere between,

   (a) the lowest opening from any pipe or faucet supplying water to a tank or fixture; and

   (b) the flood-level rim of the tank or fixture;

2. "area drain" means a drain installed to collect surface water from an open area;

3. "back flow" means such flow of,

   (a) water from any place; or

   (b) any solid, liquid or gaseous substance or any combination thereof,

   into a distributing pipe for potable water as may make the water in that pipe non-potable;

4. "back-flow preventer" means a device to prevent back flow from the outlet end of the supply system;

5. "back vent" means a pipe installed to vent a trap or waste pipe and connected to the vent system at a point above the fixture served by the trap or waste pipe; and "back vented" has a corresponding meaning;

6. "backwater valve" means a valve installed in a building drain or building sewer to prevent sewage from flowing back into the building;

7. "branch vent" means a vent pipe connecting one or more individual vent pipes to a vent stack or a stack vent;

8. "building drain" means the lowest horizontal piping of drainage piping in and adjacent to a building or other structure that receives the discharge from a drainage pipe and conveys it to the building sewer;

9. "building sewer" means that part of drainage piping outside a building or other structure, that connects a building drain to the main sewer or, where the

place of disposal of the sewage is on the property, to the place of disposal on the property and that commences at a point three feet from the outer face of the wall of the building or other structure and terminates at the property line or place of disposal on the property;

10. "building trap" means a running hand hole trap installed in a building drain to prevent circulation of air between the building drain and the building sewer;

11. "circuit vent" means a vent that functions for two or more traps and extends to a vent stack from a point on a horizontal branch in front of the last connected fixture; and "circuit vented" has a corresponding meaning;

12. "clean-out" means a device that has a removable cap or plug securely attached to it and is so constructed that it can be installed in a pipe so that the cap or plug may be removed to permit pipe cleaning apparatus to be inserted into the pipe;

13. "continuous waste and vent" means a vent pipe that is a vertical extension of a vertical waste pipe and includes the vertical waste pipe.

14. "copper tube" means copper tube or tubing having the dimensions and characteristics set out in Table 9;

15. "dead end" means a branch leading from drainage piping or a vent pipe that ends in a cap. plug or other closed fitting;

16. "developed length", when used with reference to a pipe, means its length along the centre line of the pipe;

17. "distributing pipe" means pipe to convey water from a service pipe to a fixture or to an outlet and includes the control valves and fittings connected in it, but does not include a meter or control valve or other device owned and controlled by the supplier of the water;

18. "drainage piping" means all the connected piping that conveys sewage to a place of disposal, including the building drain, building sewer, soil pipe, soil stack, waste stack and waste pipe but does not include,

(a) a main sewer; and

(b) piping used for sewage in a sewage plant;

and "drainage pipe" means any pipe in drainage piping;

19. "dual vent" means a vent pipe connecting at a junction of waste pipes serving two fixtures and serving as a common vent pipe for both fixtures;

20. "effective opening" means the cross-sectional area of a faucet, fitting or pipe at the point of discharge;

21. "faucet" means a water tap;

22. "first" when used with reference to the connection of a fixture to a horizontal branch, means nearest to the waste stack or soil stack;

23. "fixture" means a receptacle or any equipment that receives water, liquids or sewage and discharges the water, liquids or sewage into drainage piping;

24. "fixture trap" means a trap integral with or serving a fixture and includes an interceptor serving as a trap for a fixture;

25. "fixture unit" means the unit in which the hydraulic load produced by fixtures is expressed and determined under regulation 74;

26. "flood level" means the level at which water begins to overflow the top or rim of the fixture;

27. "flood level rim" means the top edge of a receptacle from which water overflows;

28. "floor drain" means a drain to receive water from a floor of a building;

29. "flush valve" means a valve for flushing a sanitary unit;

30. "graded", when used with reference to a pipe, means its slope with reference to the true horizontal;

31. "horizontal" means not departing from the true horizontal plane by more than 45 degrees;

32. "horizontal branch" means that part of a waste pipe that is horizontal and installed to convey the discharge from more than one fixture;

33. "indirect waste" means waste that is not discharged directly into drainage piping;

34. "indirect waste pipe" means a waste pipe that does not connect directly with drainage piping, but discharges into it through a trapped fixture;

35. "in front of", when used with reference to the point of connection of a fixture to a horizontal branch, means in the direction of discharge;

36. "inspector" means a person appointed or authorized by a municipality to carry out the inspections prescribed by these regulations;

37. "interceptor" means a receptacle to prevent oil, grease, sand or other materials from passing into drainage piping;

38. "last", when used with reference to the point of connection of a fixture to a horizontal branch, means farthest from the waste stack, soil stack or building drain to which the horizontal branch is connected;

39. "loop vent" means a branch vent that functions for two or more traps and loops back or extends to a stack vent from a point in front of the last connection of a fixture to a horizontal branch and "loop vented" has a corresponding meaning;

40. "main sewer" means the public sewer including its branches;

41. "multiple unit dwelling" means a building so constructed, altered or used as to provide accommodation for more than one family to dwell in separately;

42. "offset", when used with reference to piping, means a pipe or a bend of pipe or both that takes one section of the piping out of line with, but parallel to, another section;

43. "open air" means the atmosphere outside a building;

44. "outlet", when used with reference to distributing pipe, means an opening at which water is discharged from the pipe,

    (a) from a faucet;

    (b) into a boiler or a heating system;

    (c) into a device or equipment that is operated by water and that is not part of the distributing system; or

    (d) into the open air, other than into an open tank forming part of the supply system;

45. "pipe" or "piping" includes tube and tubing other than copper tube or tubing and includes fittings;

46. "potable water" means water fit for human consumption;

47. "potable water system" means the plumbing that conveys potable water;

48. "public building" means any building to which the public have a right of access and, without limiting the generality of the foregoing, includes,

    (a) an apartment building or apartment house;

    (b) a boarding house having equipment to provide meals for ten or more boarders;

    (c) a building occupied by a municipal, public utility or educational body;

    (d) an eating establishment within the meaning of Regulations 332 of Consolidated Regulations of Ontario, 1950;

    (e) a factory, shop or office building as defined in The Factory, Shop and Office Building Act;

    (f) a hotel as defined in The Hotel Fire Safety Act;

    (g) a lodging house having accommodation for ten or more lodgers;

    (h) a public hall as defined in The Public Halls Act;

    (i) a tourist establishment as defined in The Tourist Establishments Act; and

    (j) premises, whether enclosed or not, where

        (i) any cinematograph or moving-picture machine

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or similar apparatus is operated,

(ii) any theatrical performance, carnival, circus, side show, menagerie, concert, rodeo, exhibition, horse race, athletic contest or other exhibition is staged or held, or

(iii) facilities for dancing or ice skating or roller skating are provided,

and to which admission is granted upon payment for admission;

49. "relief vent" means a vent pipe discharging into a vent stack and connected to a horizontal branch between the first fixture connection and the soil stack or waste stack;

50. "rim" means the unobstructed open edge of a fixture;

51. "riser" means a supply pipe that extends through at least one full storey to convey water;

52. "sanitary unit" means a water-closet, urinal or bed pan washer;

53. "service pipe" means the pipe that conveys water between the main shut-off valve on the public water system and the control shut-off valve in a supply system;

54. "sewage" means any liquid waste containing animal, vegetable or mineral matter in suspension or solution;

55. "sewage tank" means a sump that is airtight except for the vent required by regulation 121 and that receives the discharge of sewage from a subdrain;

56. "soil stack" means a stack that conveys the discharge of sanitary units with or without the discharge from any other fixture;

57. "stack" means that part of drainage piping that is vertical and that runs from the building drain or sewage tank to the open air and includes offsets;

58. "stack vent" means the extension of a soil stack or waste stack above the highest connection of a waste pipe to the stack;

59. "subdrain" means a drain that is at a level lower than the building drain and the building sewer;

60. "sump" means a watertight tank,

(a) that receives the discharge of drainage water from a subdrain; and

(b) from which the discharge flows or is ejected into drainage piping by pumping;

61. "supply system", includes the service pipe, distributing pipe and all connecting pipes, fittings, control valves and devices;

62. "trap seal" means the vertical depth of water between the crown weir and the trap dip;

63. "trap standard" means the trap for a fixture that is integral with the support for the fixture;

64. "trunk", when used with reference to drainage piping or vent pipe means a pipe into which two or more smaller drainage or vent pipes discharge;

65. "vent stack" means a continuous run of vent pipe connected to a soil stack, waste stack or building drain and terminating in the open air;

66. "vent system" means a system of piping installed to provide a flow of air to or from drainage piping;

67. "vertical" means not departing from the true vertical plane by more than 45 degrees;

68. "waste pipe" means that part of drainage piping that runs from a fixture to a waste stack, soil stack, building drain or sewage tank;

69. "waste stack" means a stack that is not a soil stack;

70. "water-closet" means a fixture commonly so known;

71. "wet vent" means a waste pipe functioning also as a vent pipe;

72. "yoke vent" means a vent pipe connecting a soil stack or a waste stack to a vent stack.

(2) A mezzanine storey or floor in or upon which a fixture is installed shall be deemed to be a separate storey or floor.

2.-(1) These regulations apply to plumbing other than plumbing constructed, repaired, renewed or altered for the sole purpose of industrial processes.

(2) These regulations do not apply to those parts of territorial districts without municipal organization.

3. No person shall construct, repair, renew or alter plumbing except in conformance with these regulations.

4.-(1) Where plumbing has been constructed, repaired, renewed or altered, the plumbing shall not be put into use until it has been inspected and found to conform to these regulations.

(2) Subregulation 1 does not apply to,

(a) the repairing or replacement of a valve, faucet or fixture; or

(b) the repairing of a leak or forcing out of a stoppage.

(3) Every municipality shall carry out such inspections as are prescribed by these regulations.

(4) Where any plumbing to be inspected is concealed, the inspector may refuse to make his inspection until the plumbing is completely uncovered and made accessible to him.

5.-(1) An inspection shall be made within seven days after notification in writing to the municipality or its authorized agents that the construction, repair, renewal or alteration is

ready for inspection.

(2) Where an inspection is made, the person who has constructed, repaired, renewed or altered the plumbing being inspected shall make the tests prescribed by these regulations under the supervision of the inspector.

(3) Where the inspector finds that the construction, repair, renewal or alteration does not conform to these regulations he shall forward to the person who has constructed, repaired, renewed or altered the plumbing and the person who has the right to possession or the owner of the premises particulars in writing of the non-conformance.

(4) Forthwith after finding that the construction, repair, renewal or alteration conforms to these regulations, the inspector shall certify the conformance in writing to the person who has the right to possession of the premises or the owner and upon request shall forward a copy of the certificate of conformance to the person who has constructed, repaired, renewed or altered the plumbing.

PART 1

GENERAL

Material

6. Except in piping of lead or copper, no joint shall be welded.

7. Used material shall not be used unless it conforms to the requirements for new material.

8.-(1) Sheet lead used in the construction, repair, renewal or alteration of plumbing shall,

(a) consist of not less than 99.85 per cent of lead; and

(b) weigh not less than 5 pounds a square foot.

(2) Lead used for caulking shall consist of not less than 99.73 per cent of lead.

9.-(1) Lead service piping of a trade size itemized in column 1 of Table 1 shall have wall thickness and density so that each yard of piping has not less than the weight prescribed in column 2.

(2) Lead waste pipe for water-closets shall be of a weight of at least 8 pounds per square foot.

10.-(1) Solder used for wiped joints of lead-to-lead or lead-to-brass or lead-to-copper shall consist of,

(a) not less than 57.85 per cent of lead;

(b) not less than 30 per cent, but not more than 40 per cent, of tin; and

(c) not more than 2 per cent of antimony,

and may contain not more than .15 per cent of impurities.

(2) The solder shall not contain aluminum or zinc.

11.-(1) Copper pipe or copper tube shall contain,

(a) not less than 99.9 per cent of copper; and

(b) not more than .04 per cent of phosphorus.

(2) Brass pipe shall contain 84 to 86 per cent of copper, not more than .06 per cent of lead, not more than .05 per cent of iron and the remainder shall be zinc.

12.-(1) Copper or brass pipe of a trade size set out in column 1 of Table 2 shall have,

(a) the actual outside diameter set out in column 2 of Table 2;

(b) where the pipe is installed as standard pipe, the nominal wall thickness set out in column 3 of Table 2; and

(c) where the pipe is installed as extra heavy pipe, the nominal wall thickness set out in column 6 of Table 2.

(2) Copper or brass pipe of a trade size set out in column 1 of Table 2 shall have the nominal weight in pounds per foot of length,

(a) where the pipe is installed as standard pipe, set out in column 4 for copper and column 5 for brass; and

(b) where the pipe is installed as extra heavy pipe, set out in column 7 for copper and column 8 for brass.

(3) The wall thickness of copper or brass pipe shall not be less than the nominal wall thickness determined under subregulation 1 by a greater tolerance than,

(a) where the pipe is 6 inches or less, trade size, 5 per cent;

(b) where the pipe is over 6 inches and not over 8 inches, trade size, 7 per cent; and

(c) where the pipe is over 8 inches, trade size, 8 per cent.

(4) The weight of copper or brass pipe shall not vary from the weight determined under subregulation 2 by a greater tolerance than,

(a) where the pipe is 6 inches or less, trade size, 5 per cent;

(b) where the pipe is over 6 inches and not over 8 inches, trade size, 7 per cent; and

(c) where the pipe is over 8 inches, trade size, 8 per cent.

13.-(1) Copper tube of a trade size set out in column 1 of Table 9 shall have,

(a) the actual outside diameter set out in column 2 within the tolerance set out in column 3 or 4, as the case may be;

(b) the nominal wall thickness set out in column 5, 7, 9 or 11 for Type K, Type L, Type M or Type DWV respectively, and the actual wall thickness shall not vary from the nominal by a tolerance of more than that set out in column 6, 8, 10 or 12, respectively; and

(c) the weight per foot set out in column 13, 14, 15 or 16 for Type K, Type L, Type M or Type DWV, respectively.

(2) The dimensions of copper service tube that is buried underground shall be not less than those for Type K in Table 9.

(3) Where copper tube that is used as a waste pipe or vent pipe is buried under ground within a building, the dimensions of the tube shall be not less than those for Type L in Table 9.

(4) Where copper tube that is used as a waste pipe or vent pipe is buried underground outside a building, the dimensions of the tube shall be not less than those for Type K in Table 9.

(5) Copper tube in a supply system inside buildings shall have dimensions not less than those for Type L in Table 9.

(6) Copper tube installed a bove ground and used as a waste pipe or vent pipe shall have dimensions not less than those for Type DWV in Table 9.

(7) Hard copper tube shall not be installed urless its manufacturer has permanently marked thereon a designation indicating that it is K, L, M or DWV type at intervals of not more than two feet throughout its length.

14.-(1) Soldered pressure fittings and soldered drainage fittings made by the casting process shall contain the metals set out in the Table in items 1 and 2 of the Table in proportions at least those set out in column 2, and shall not contain metals other than those in items 3 to 7 and those metals shall not be in proportions greater than those in column 2, as follows:

TABLE

Column 1	Column 2
1. Copper	78% minimum
2. Tin	2.25% minimum
3. Lead	8.0% maximum
4. Zinc	10.0% maximum
5. Nickel	1.0% maximum
6. Iron	0.4% maximum
7. Phosphorus	0.05% maximum

(2) Soldered pressure fittings and soldered drainage fittings made by the forging process shall not contain any metal

in items 2, 3 and 4 of the Table in proportions in excess of the percentages in column 2 and shall contain the metals in items 1 and 5 in proportions at least those in column 2, as follows:

TABLE

Column 1	Column 2
1. Copper	58.0% minimum
2. Tin	1.5% maximum
3. Lead	2.5% maximum
4. Iron	0.30% maximum
5. Zinc	Remainder

Total of other impurities, 0.5% maximum.

(3) Soldered pressure fittings and soldered drainage fittings made by the machining process shall not contain the metals in items 2, 3, 4 and 5 of the Table in proportions in excess of the percentages in column 2 and shall contain the metals in items 1 and 6 in proportions at least those in column 2, as follows:

TABLE

Column 1	Column 2
1. Copper	60.0% minimum
2. Tin	1.2% maximum
3. Lead	3.7% maximum
4. Nickel	1.2% maximum
5. Iron	0.35% maximum
6. Zinc	Remainder

Total other impurities, 0.5% maximum.

(4) Soldered pressure fittings and soldered drainage fittings made by the wrought process shall not contain the metals in items 2, 3, 4 and 5 of the Table in proportions in excess of the percentages in column 2 and shall contain the metals in items 1 and 6 in proportions at least those in column 2, as follows:

TABLE

Column 1	Column 2
1. Copper	84.0% minimum
2. Tin	1.2% maximum
3. Lead	0.06% maximum
4. Iron	0.05% maximum
5. Phosphorus	0.04% maximum
6. Zinc	Remainder

15. Soldered drainage fittings shall be of the DWV Type and permanently marked DWV.

16. A brass caulking ferrule of a trade size itemized in column 1 of Table 3 shall,

(a) conform to the specifications prescribed for brass piping by subregulation 2 of regulation 11;

(b) have an actual inside diameter not less than that prescribed in column 2;

(c) be of a length not less than that prescribed in column 3; and

(d) have weight not less than that prescribed in column 4.

17. A brass soldering nipple of a trade size itemized in column 1 of Table 4 shall,

(a) conform to the specifications prescribed for brass piping by subregulation 2 of regulation 11;

(b) be of a length not less than that prescribed in column 2; and

(c) have weight not less than that prescribed in column 3.

18. A brass soldering hub of a trade size itemized in column 1 of Table 5 shall,

(a) conform to the specifications prescribed for brass piping by subregulation 2 of regulation 11;

(b) have an actual inside diameter not less than that prescribed in column 2;

(c) be of a length not less than that prescribed in column 3; and

(d) have weight not less than that prescribed in column 4.

SUPPORT OF PIPES

19.-(1) An underground pipe shall be supported and protected in such manner and at such intervals as will prevent the pipe and the joints from being subjected to any stress likely to cause breakage.

(2) A pipe passing under or through a wall shall be protected against breakage caused by the weight of the wall bearing on the pipe or by settling of the wall.

(3) A metal pipe passing under or through cinders or corrosive material shall be protected against corrosion by a heavy coat of bituminous or similar material applied to the outside of the pipe.

(4) The supply system and drainage piping shall be protected from damage by freezing.

(5) Provision shall be made for probable expansion or contraction of piping by means of expansion joints or expansion loops.

20.-(1) Vertical piping shall be supported and anchored with strong wrought iron rests.

(2) Subject to subregulation 3, the rests shall be set not farther apart than,

(a) the floor levels of alternate storeys; or

(b) twenty-five feet vertical distance,

whichever is the lesser.

(3) Where pipes are offset or branched, the rests shall be placed at such shorter intervals as are necessary to support and keep the piping in alignment when full of liquid.

21.-(1) Subject to subregulations 2 to 5, horizontal piping shall be supported at points sufficiently close,

(a) to prevent the pipe from sagging when it is full of liquid; and

(b) to keep it in alignment when it is full of liquid.

(2) No interval between supports shall be greater than eight feet.

(3) Lead pipe in horizontal runs shall be supported throughout its entire length.

(4) Cast iron pipe in horizontal runs shall have at least one support between each two joints.

(5) Piping in horizontal runs of material other than lead or cast iron shall be supported at intervals of not more than,

(a) eight feet for pipes larger than $\frac{3}{4}$ inch, trade size; and

(b) six feet for pipes of $\frac{3}{4}$ inch, or smaller, trade size.

22.-(1) Ring hangers shall be used for pipe of a trade size of more than 4 inch and, where the pipe is suspended from above, for pipe of 4 inch trade size.

(2) Where a strap hanger or ring hanger is used, it shall be of metal and,

(a) subject to subregulation 4, come into contact with the metal of the pipe;

(b) be of a design and strength sufficient to support the load carried; and

(c) be securely attached to the building.

(3) Where a strap hanger or ring hanger is attached to stone, brick, cement, concrete or other similar material, the attachment shall be made by means of metal or expansion type plugs inserted into the material.

(4) Where a strap hanger or ring hanger supporting brass or copper pipe is of a material different from the pipe it

shall be insulated to prevent electrolysis between the pipe and the hanger.

PART 2

WATER SYSTEMS

General

23. This Part applies to supply systems conveying potable water.

24.-(1) No connection shall be made in a potable water system whereby any foreign matter or non-potable water may enter the potable water system.

(2) No person shall interfere with a potable water system in such manner as to cause the water to become non-potable.

(3) No pipe or fitting that has been used for any purpose other than the distribution of potable water shall be installed in a potable water system.

(4) A potable water system shall be separate from and independent of a supply system for non-potable water.

(5) No pipe conveying non-potable water or sewage shall be run where it may contaminate the water in,

(a) a tank for potable water that is not a pressure tank; or

(b) any food handling equipment.

(6) No part of a sewage ejector shall be connected to any part of a potable water system.

25.-(1) A tank for distributing potable water that is not a pressure tank shall have a cover sufficiently tight fitting to keep foreign matter from entering the water.

(2) Every well, pump, tank, filter, softener, appliance and device connected to a potable water system shall be provided with such covers, walls, copings and casings as entirely exclude superficial ground or surface water and other sources of contamination.

26. All newly installed repaired or altered parts of a potable water system shall, before the system is put into use, be thoroughly cleansed to ensure freedom from contamination.

27. All piping conveying non-potable water shall be,

(a) identified by distinct, easily recognizable, permanent marking; and

(b) not accessible as a supply of water for human consumption or for preparation of food.

28. Non-potable water shall not be conveyed to any part of a food processing establishment where food is being processed.

PIPING

29.-(1) Subject to subregulation 2, service piping and distributing piping shall be of,

(a) brass, conforming to regulations 11 and 12;

(b) cast iron, conforming to regulation 30;

(c) copper, conforming to regulations 11 and 12;

(d) lead, conforming to regulation 9;

(e) open hearth iron, conforming to regulation 31;

(f) steel, conforming to regulation 32; or

(g) wrought iron, conforming to regulations 33 and 34;

(2) Service piping may be of polyethylene if the pipe,

(a) is non-toxic;

(b) contains not less than 2 per cent of channel carbon black, having a particle size of 10 to 22 millimicrons mean effective diameter and being well dispersed as revealed by microscopic examination;

(c) contains an anti-oxidant;

(d) is permanently identified at intervals of not more than twenty feet;

(e) is composed of unused polyethylene, single pass rework polyethylene or a blend of unused polyethylene with single pass rework polyethylene that is of the same type and kind and manufactured by the same manufacturer;

(f) is capable of withstanding a working pressure of at least 100 p.s.i. and is permanently marked with the working pressure at intervals of not more than twenty feet;

(g) is capable of withstanding a burst pressure of 400 per cent of the working pressure where the pressure is increased at a constant rate of 10 per cent of the burst pressure every six seconds at a temperature of 70°F;

(h) while subjected, during the Kellam Stress Cracking Test, to an internal pressure of 200 per cent of its working pressure for at least three hours, produces no failures out of six pieces tested;

(i) has fittings of a material not containing any polystyrene which are secured by clamps of which all parts are made only of stainless steel,

and if each of ten samples, each from .23 to .27 inches wide, .065 to .085 inches thick and 1¼ inches long, cut from a sheet pressed from the pipe, shows no sign of cracking when,

(j) clamped so that from .75 to 1.25 inches is unsupported;

(k) under a temperature of -55°C; and

(l) the unsupported section is struck a blow with an instrument having a striking edge with a radius of 1/16th of an inch moving at a speed of from 6 to 7 feet per second, at a point where the centre line of the striking edge is from .30 to .32 inches from the face of the clamp holding the specimen.

(3) Where a pipe or fitting of iron of any kind or of steel is used, it shall be zinc galvanized or cement lined and, where it is underground, it shall be of a trade size not smaller than 1¼ inch.

(4) No pipe of one inch diameter or less in a supply system in a building shall be tapped or drilled.

30. Distributing piping or service piping of cast iron shall have a tensile strength to withstand an internal hydrostatic pressure of at least 150 p.s.i.

31.-(1) Welded alloyed open hearth iron piping of a trade size itemized in column 1 of Table 6 shall,

(a) have wall thickness not less than that prescribed in column 2;

(b) subject to subregulation 2, have a tensile strength to withstand internal hydrostatic pressure of at least the number of pounds per square inch prescribed in,

(i) column 3, for furnace butt-welded piping, or

(ii) column 4, for electric welded piping;

(c) have weight for each linear foot, when threaded and with couplings attached, not less than that prescribed in column 5; and

(d) when threaded, have in each threaded inch not less than the number of threads prescribed in column 6.

(2) Welded alloyed open hearth iron piping of 2 inch or larger, trade size, shall have a tensile strength prescribed in clause b of subregulation 1 at the same time as the piping is being subjected to end jarring equivalent to that produced by a two pound hammer.

(3) Nipples shall be made from piping conforming to subregulations 1 and 2.

32.-(1) Steel piping of a trade size, larger than 4 inch, shall be lap welded.

(2) Couplings for steel piping shall be of wrought iron or steel.

(3) Steel piping of a trade size itemized in column 1 of Table 7 shall,

(a) have an actual outside diameter not less than that prescribed in column 2, and a wall

thickness not less than that prescribed in column 3;

(b) have weight for each linear foot, when threaded and with couplings attached, not less than that prescribed in column 4; and

(c) when threaded, have in each threaded inch not less than the number of threads prescribed in column 5.

33.-(1) Wrought iron piping of a trade size larger than 2 inch shall be lap welded.

(2) Butt-welded wrought iron piping shall have a tensile strength to withstand internal hydrostatic pressure of at least 700 p.s.i.

(3) Lap-welded wrought iron piping of a trade size up to and including 12 inch shall have a tensile strength to withstand internal hydrostatic pressure of,

(a) at least 1000 p.s.i. in piping of a trade size of 6 inch or smaller;

(b) at least 800 p.s.i. in piping of 8 inch, trade size; and

(c) at least 600 p.s.i. in piping of a trade size of 10 inch or 12 inch.

(4) Lap-welded wrougnt iron piping of a trade size greater than 12 inch shall have a tensile strength to withstand internal hydrostatic pressure in pounds per square inch at least equal to the product of,

(a) the wall thickness in inches; and

(b) 24,000,

divided by the outside diameter in inches.

34. Wrought iron piping of a trade size itemized in column 1 of Table 8 shall have,

(a) an actual outside diameter not less than that prescribed in column 2;

(b) wall thickness not less than that prescribed in column 3;

(c) weight for each linear foot, when threaded and with couplings attached, not less than that prescribed in column 4; and

(d) when threaded, in each threaded inch not less than the number of threads prescribed in column 5.

35.-(1) Joints of copper tubing shall be soldered, sweated or flared.

(2) A soldered joint for copper tubing shall be,

(a) made with a fitting having shoulders or other means for limiting the insertion; and

(b) properly fluxed and soldered.

(3) All surface to be soldered shall be cleaned until bright.

36.-(1) Every joint and connection in a potable water system shall be watertight under an internal water pressure of at least 150 p.s.i.

(2) Where, during installation or at any time before inspection, piping or a joint or a fitting is so injured that it will leak when subjected to the test prescribed by regulation 46, the injured piping, joint or fitting shall be removed from the system.

37. Where a service pipe and a building sewer are laid in the same trench, the service pipe shall be laid on solid ground.

38.-(1) A service pipe shall be equipped with a main shut-off valve outside the building, and with,

(a) a control shut-off valve integrated with a drip valve inside the foundation wall if the pipe is 1 inch, or larger, trade size; or

(b) an accessible stop-and-waste cock, if the pipe is smaller than 1 inch, trade size.

(2) Every tank connected to a distributing pipe shall be equipped with,

(a) a valve in the supply line; and

(b) a drain-off valve.

39.-(1) All water pipes shall be so graded that the whole system can be completely drained,

(a) in its entirety; or

(b) in separate parts.

(2) Where an invert or sag such as may cause a water trap or air trap is unavoidable, the piping shall be equipped with a drain cock or drain plug at the lowest point of the invert or sag.

40.-(1) A stopcock or valve shall be installed where it is at all times readily accessible and will completely drain the whole system it serves.

(2) A stopcock or valve shall be installed at each sanitary unit.

(3) In a public building a stopcock or valve shall be installed,

(a) at the foot of each riser or where there is no riser, at the place where each distributing pipe serving more than three fixtures, connects to the service pipe; and

(b) at each fixture or at each battery of wash basins

(4) In a multiple unit dwelling, a stopcock or valve shall be installed,

(a) at the foot of each riser supplying more than one storey; and

(b) at the place where each fixture or group of fixtures serving each dwelling unit can be completely isolated.

PREVENTION OF BACKFLOW

41.-(1) In this regulation, "wall" includes,

(a) a wall of a room or building; and

(b) the inner surface of a fixture and of its superstructure.

(2) Except as permitted under regulation 43, where the orifice of a faucet, spout or distributing pipe supplies potable water to a fixture, it shall be so located that it is above the flood level rim of the fixture a vertical distance of not less than the minimum air gap prescribed by subregulation 3 or 4.

(3) Where that point of the orifice that is nearest to a wall is located,

(a) a distance more than three times the diameter of the effective opening of the orifice from one wall; or

(b) a distance more than four times the diameter of the effective opening of the orifice from each of two intersecting walls,

the minimum air gap shall be not less than a distance equal to the diameter of the effective opening multiplied by two.

(4) Where that point of the orifice that is nearest to a wall is located,

(a) a distance equal to or less than three times the diameter of the effective opening of the orifice from one wall; or

(b) a distance equal to or less than four times the diameter of the effective opening of the orifice from each of two intersecting walls,

the minimum air gap shall not be less than a distance equal to the diameter of the effective opening multiplied by three.

42.-(1) Where a tank is connected to a potable water system, the tank shall have a valved drain line connected at the lowest point of the tank.

(2) Where the drain line discharges into a receptacle, the discharge outlet of the drain line shall be located above the flood level rim of the receptacle a distance not less than the air gap prescribed by regulation 41.

43.-(1) In this regulation, "critical level" means the horizontal plane at which a back-flow preventer functions.

(2) Subject to subregulation 4, where it is not practicable

to provide an air gap as prescribed by regulation 41, a back-flow preventer may be installed on the distributing pipe in a readily accessible position between the last valve on the distributing pipe and the outlet.

(3) A back-flow preventer shall be installed in a manner so that its critical level is above,

(a) the flood level rim of the fixture; or

(b) the highest possible water level in the tank,

a vertical distance not less than,

(c) four times the diameter of the inlet of the control valve; or

(d) four inches,

whichever is the greater.

(4) Where a tank that is not a pressure tank is so constructed or so located that it is not practicable to provide above the flood level rim of the tank the minimum air gap prescribed by regulation 41 or to install a back-flow preventer,

(a) the tank shall have an overflow outlet consisting of a channel or pipe below the flood level rim and below all pipes supplying water to the tank;

(b) the vertical distance from the lowest point of any of the supply pipes to the top of the overflow outlet shall be not less than $1\frac{1}{2}$ times the minimum air gap prescribed by regulation 41;

(c) the total effective opening of the overflow outlets shall be enough that, when water is flowing into the tank at maximum rate with all inlets fully opened and all outlets, except the overflow outlets, closed, water will not rise to a point above the top of the highest overflow outlet a distance greater than one-half the minimum air gap prescribed by regulation 41;

(d) the overflow outlet shall have unobstructed discharge to the open air;

(e) the channel or pipe shall have an unobstructed cross-sectional area throughout its length not less than the effective opening of the outlet;

(f) the tank and the overflow outlet shall be protected from damage by freezing; and

(g) the discharge end of the overflow outlet shall be kept free of ice and all obstructions.

44.-(1) Subject to subregulation 2, where a cooling jacket, a condenser or an industrial or special appliance is constructed or located so that,

(a) the prescribed minimum air gap is not provided; or

(b) a back-flow preventer is not installed,

the jacket, condenser or appliance shall not be connected to or

supplied directly from a potable water system.

(2) Water from a potable water system may be used in a jacket, condenser or appliance where the potable water,

(a) is first discharged into a tank conforming to regulation 41 or 43 as the case may be; and

(b) is not returned to the potable water system from the jacket, condenser or appliance.

(3) A polyethylene service pipe shall not be installed to supply a hot water tank unless a check valve is installed on the distributing pipe supplying the hot water tank.

(4) Where a check valve is installed on the distributing pipe supplying a hot water tank, the hot water tank shall be equipped with a pressure relief valve designed to open when the water in the tank reaches a predetermined pressure and a temperature relief valve for which the sensing element is within the top six inches of the tank and designed to open when the sensing element reaches a predetermined temperature.

DRINKING FOUNTAINS

45.-(1) A drinking fountain shall,

(a) be of such materials and design as will ensure that all surfaces that potable water may reach before going into the waste pipe are hard, smooth, impervious to water and free from chips and cracks and can be readily cleansed;

(b) have an orifice that,

(i) is located above the flood level of the bowl;

(ii) is shielded so that a person cannot put his lips on the orifice, and

(iii) directs the water at an angle of approximately 45 degrees upward from the true horizontal; and

(c) be equipped with a readily accessible means for regulating the flow of water.

(2) Where the orifice has an effective opening not greater than .15 square inch, the nozzle shall be located so that the lower edge of the orifice is not less than $\frac{3}{4}$ inch above the flood level rim of the receptacle.

TESTING

46.-(1) A potable water system or a section thereof shall be tested by subjecting the system or section to a water pressure of 150 p.s.i. for not less than one hour after all air is expelled and all outlets are tightly closed.

(2) The inspector shall,

(a) by visual examination of all unconcealed parts; and

(b) by gauge tests,

satisfy himself that no water is leaking or seeping out from any pipe, joint or fitting other than at an outlet.

PART 3

SEWAGE SYSTEMS

47. This Part applies to drainage piping and the venting thereof.

PIPING AND FITTINGS

48.-(1) No double Y fitting shall be used on a run of drainage pipe that departs from the true horizontal plane by less than 45°.

(2) No drainage pipe or vent pipe shall be drilled, tapped or welded.

(3) No saddle hub or band shall be used on a drainage pipe or vent pipe.

(4) No caulked cast iron fitting with double hubs shall be used except on a vent pipe.

(5) No branch fitting with a double T shall be used on drainage piping.

(6) No T-Y fitting shall be used to change the direction of horizontal drainage piping.

(7) Every fitting, connection or joint shall be so constructed and installed that it does not reduce the free flow of liquid by more than 10 per cent.

(8) A metal-faced union shall not be used except in a vent pipe.

49.-(1) Where a building drain, building sewer or subdrain is laid on unstable foundation, it shall be of cast iron and supported by a layer of concrete or piers of brick, stone or concrete.

(2) Where a layer of concrete is used, it shall be not less than four inches thick and shall extend for six inches on each side of the pipe.

(3) Where piers are used, they shall,

(a) each have a cross-sectional area of not less than 110 square inches;

(b) be at intervals not greater than eight feet; and

(c) extend down to a solid foundation.

(4) Where a wrought iron rod or steel rod is placed underground to support piping, its smallest dimension shall be not less than $\frac{3}{4}$ inch.

50.-(1) A 90 degree bend in a drainage pipe shall have a curvature with a radius of not less than the diameter of the pipe.

(2) A cross fitting or a single or double T fitting shall not be used to connect a branch in drainage piping.

(3) A T-Y fitting shall not be used to connect a branch to a horizontal section of drainage piping that departs from the true horizontal plane by less than 45°.

(4) A double T-Y fitting used to connect a waste pipe to a vertical section of a stack, shall have a diameter of not less than three inches and openings of $1\frac{1}{4}$ inches, $1\frac{1}{2}$ inches or two inches.

51.-(1) Where a dead end is installed it shall be graded so that all moisture accumulating in it drains back into the system.

(2) Every unconnected opening in drainage piping and unconnected opening in vent piping, other than an opening to open air, shall be closed by airtight metal capping.

52.-(1) A galvanized vent pipe or drainage pipe shall not be laid underground.

(2) A pipe laid under a building and to a point three feet beyond the exterior wall of the building shall be of,

(a) asbestos cement;

(b) bituminized fibre;

(c) cast iron;

(d) concrete;

(e) non ferrous metal; or

(f) vitrified clay,

(3) Where a pipe of a material specified in clause a, b, d, or f, of subregulation 2 is so located that the distance between the top of the pipe and the bottom of the basement floor over it is less than twenty-four inches, the pipe shall be covered to a depth of not less than three inches by concrete consisting of,

(a) one part of Portland cement;

(b) two parts of sand; and

(c) four parts of gravel or equivalent aggregate.

(4) The basement floor may constitute the covering required by subregulation 3 if the basement floor is composed of the material and is of the thickness required by subregulation 3.

53.-(1) Subject to subregulations 2 and 3, drainage piping within a building shall be of,

(a) brass;

(b) cast iron;

(c) copper;

(d) galvanized open hearth iron;

(e) galvanized steel;

(f) galvanized wrought iron; or

(g) lead.

(2) Every waste pipe and trap connected thereto that are used to carry sewage that is more corrosive than the sewage in the horizontal branch, soil stack, waste stack or building drain into which it discharges shall be composed of a material that will withstand the corrosive effect of the sewage.

(3) Piping for a building sewer shall be not less than 4 inch, trade size and shall be of,

(a) asbestos cement;

(b) bituminized fibre;

(c) cast iron;

(d) concrete;

(e) non-ferrous metal; or

(f) vitrified clay.

54.-(1) Asbestos cement sewer piping of a trade size itemized in column 1 of Table 10 shall have,

(a) a wall thickness not less than that prescribed in column 2;

(b) flexural strength to withstand a total load not less than that prescribed in column 3 when one-half of that load is applied simultaneously at each of two points in a span not longer than that prescribed in column 4 and the points are equidistant from each other and from the ends of the span; and

(c) supporting strength to withstand external crushing pressure not less than that prescribed in column 5, where the pressure is applied by the 3-bearing method to each linear foot of the piping.

(2) The tensile strength of asbestos cement sewer piping of 8 inch or larger, trade size, shall also be sufficient to withstand internal hydrostatic pressure of not less than 50 p.s.i.

55. All fittings for asbestos cement pipe shall be made of either cast iron or asbestos cement and the joints between the fittings and the asbestos cement pipe shall be the rubber ring or compression type.

56.-(1) The bituminized fibre in drainage piping shall consist of a bituminous compound reinforced with an interwoven fibrous structure and be so made that the piping,

(a) does not disintegrate or separate into laminations, after successive immersions in solutions of .1 normality of,

(i) sulphuric acid,

(ii) sodium carbonate, and

(iii) sodium sulphate,

for a period of thirty days in each solution;

(b) does not disintegrate or separate into laminations when immersed in boiling water for one hour;

(c) does not absorb water sufficiently to increase

the weight more than 2 per cent when immersed for forty-eight hours at a temperature of 75°F; and

(d) when heated for eight hours in an oven at 180°F, does not lose more than 10 per cent of either its bitumen or its roundness.

(2) The piping shall have a taper of 2 per cent at each end.

(3) Bituminized fibre drainage piping of a trade size itemized in column 1 of Table 11 shall have,

(a) wall thickness not less than that prescribed in column 2, and

(b) supporting strength to withstand a crushing load for each linear foot not less than that prescribed in column 3, when the piping is subjected to that load applied between two flat plates having a head-speed of $\frac{1}{8}$ inch a minute.

(4) Bituminized fibre couplings of a trade size itemized in column 1 of Table 11 shall,

(a) have wall thickness not less than that prescribed in column 2;

(b) be of a length not less than that prescribed in column 4;

(c) have supporting strength to withstand a crushing load for each foot not less than that prescribed in column 5 when the coupling is subjected to that load applied between two flat plates having a head-speed of $\frac{1}{8}$ inch a minute.

(5) A bend of bituminized fibre piping shall,

(a) have wall thickness at its thinnest point not less than that prescribed in subregulation 3 for piping of the same trade size; and

(b) be so curved that a ball, having a diameter $\frac{1}{4}$ inch less than the trade size of the bend, will pass freely through it.

(6) All fittings used to join bituminized fibre piping shall have a taper of 2 per cent.

57.-(1) Subject to subregulation 2, each five foot length of cast iron drainage pipe or vent pipe with a single hub of a trade size itemized in column 1 of Table 12 shall have not less than the weight prescribed in column 2.

(2) Each five foot length of extra heavy cast iron drainage pipe or vent pipe with a single hub of a trade size itemized in column 1 of Table 12 shall have not less than the weight prescribed in column 3.

(3) Where the pipe has a double hub, the weight shall be that prescribed by subregulation 1 or 2 plus the weight of the additional hub.

(4) Cast iron drainage pipe or vent pipe shall be extra heavy where cast iron drainage pipe or vent pipe of the weight determined under subregulation 1 is not likely to withstand

service conditions to which it may be subjected or is likely to become a hazard to health.

(5) Cast iron drainage pipe and vent pipe shall not contain more than,

(a) .11 per cent of sulphur; or

(b) .9 per cent of phosphorus,

and shall be of material so composed that a twenty inch test rod of the same composition, with a diameter of 1.2 inches, does not break and is not deflected at the centre more than .2 inch when the rod is supported on two rests eighteen inches apart and subjected to a load of 1750 pounds applied midway between the rests,

(6) Cast iron drainage pipe and vent pipe shall have,

(a) tensile strength to withstand,

(i) a hydrostatic internal pressure of not less than 50 p.s.i., or

(ii) a pneumatic internal pressure of not less than 50 p.s.i. applied when the pipe or fitting is immersed in water;

(b) hubs and spigots that are truly circular;

(c) a corrosion retarding coating inside and outside; and

(d) hubs with a minimum depth of $2\frac{1}{2}$ inches.

58. Threaded cast iron drainage pipe or vent pipe of a trade size itemized in column 1 of Table 13 shall,

(a) conform to regulation 57;

(b) have a wall thickness of not less than that prescribed in column 2;

(c) weigh for each linear foot not less than the weight prescribed in column 3, and

(d) have thread length not less than that prescribed in column 4.

59. Where a metal pipe is cement lined, the lining shall be of,

(a) Portland cement and sand in equal parts or

other materials producing a mortar having less water solubility and shrinkage than Portland cement and sand in equal parts;

(b) have a thickness at its thinnest part not less than,

(i) 1/8 inch, in piping of a trade size up to and including 12 inch;

(ii) 3/16 inch, in piping of a trade size 14 inch to 24 inch, both inclusive, or

(iii) $\frac{1}{4}$ inch, in piping of a trade size 30 inch to 48 inch, both inclusive; and

(c) have the surface toward the centre of the pipe hard, smooth, cylindrical and free from corrugations and other irregularities that may interfere with the free flow of liquid through the pipe.

60.-(1) The concrete of sewer piping shall be of Portland cement and mineral aggregate that is siliceous or quartzose.

(2) The piping shall,

(a) not be so porous that, when dry piping is immersed in boiling water for five hours, it absorbs water weighing more than 8 per cent of the dry weight of the piping; and

(b) have tensile strength to withstand internal hydrostatic pressure of not less than 15 p.s.i.

(3) The barrel of concrete sewer piping of a trade size itemized in column 1 of Table 14 shall have,

(a) wall thickness not less than that prescribed in column 2;

(b) internal diameter not less than that prescribed in column 3; and

(c) supporting strength to withstand external pressure of not less than the number of pounds for each linear foot prescribed in column 4, when applied by the three bearing method.

(4) The socket of concrete sewer piping of a trade size itemized in column 1 of Table 14 shall have,

(a) wall thickness at a point $\frac{1}{2}$ inch from its outer end not less than $\frac{3}{4}$ of the wall thickness of the barrel prescribed by clause a of subregulation 3;

(b) internal diameter at its mouth not less than that prescribed in column 5; and

(c) depth not less than that prescribed in column 6.

61.-(1) The clay in vitrified clay piping shall contain not less than 75 per cent of aluminum silicate.

(2) The piping shall,

(a) not be so porous that, when dry piping is immersed in boiling water for five hours, it absorbs water weighing more than 8 per cent of the dry weight of the piping;

(b) not contain more than .25 per cent of matter soluble in sulphuric acid of 1 normality;

(c) not contain more than .25 per cent of matter soluble in sodium sulphate, or magnesium sulphate, having a specific gravity of not less than 1.15 and not more than 1.3; and

(d) have tensile strength to withstand internal hydrostatic pressure of not less than 15 p.s.i.

(3) The barrel of vitrified clay piping of a trade size itemized in column 1 of Table 15 shall have,

(a) wall thickness not less than that prescribed in column 2;

(b) internal diameter not less than that prescribed in column 3; and

(c) supporting strength to withstand external pressure of not less than the number of pounds for each linear foot prescribed in column 4, when applied by the three bearing method.

(4) The socket of vitrified clay piping of a trade size itemized in column 1 of Table 15 shall have,

(a) wall thickness not less than $\frac{3}{4}$ of the wall thickness of the barrel prescribed by clause a of subregulation 3;

(b) internal diameter at $\frac{1}{2}$ inch above the base of the socket not less than that prescribed in column 5; and

(c) depth not less than that prescribed in column 6.

62. Where a different size of pipe or fitting is to be inserted in a drainage pipe or vent pipe, a proper increaser or reducer having a tapered pitch of not less than $22\frac{1}{2}$ degrees with the central axis of the two members shall be used.

63. No joint, enlarged connection, fitting, chamber or recess, having in the direction of flow on the outlet or waste side of a trap a ledge or shoulder that is likely to create a reduction of the pipe area or otherwise interfere with the flow of the liquids in the piping shall be installed in drainage piping.

64.-(1) A wiped joint in a lead pipe or between lead pipe and other metal shall,

(a) be made of solder with an exposed surface not less than $\frac{3}{4}$ inch on each side of the joint; and

(b) be not less than 3/8 inch thick at its thickest part.

(2) A wiped flanged joint shall be reinforced with a lead flange projecting all around the pipe not less than $\frac{3}{4}$ inch.

65. Where a lead joint is burned or welded, the lead shall be lapped and fused to form a uniform weld at least $1\frac{1}{2}$ times as thick as the lead piping that is being joined.

66. The connections of,

(a) the inlet end of a trap to the waste pipe from a fixture; and

(b) the outlet end of a trap to a waste pipe,

shall be soldered, screwed or caulked.

67. Where a slip joint and a union are used in a trap or in the waste pipe between a trap and a fixture, they shall be so installed as to be readily accessible.

68.-(1) Every joint in a cast iron pipe shall be,

(a) lead caulked;

(b) screwed;

(c) made with hot-poured sulphur compound; or

(d) made of asbestos cement containing not less than 39 per cent of asbestos, 54 per cent of Portland cement, 4.3 per cent of hydralime and 1.4 per cent of sodium carbonate so that the joint is watertight and capable of withstanding temperatures of up to 300°F,,

but where the pipe is underground, the joint may be of the compression type.

(2) Where a pipe of wrought iron, steel, brass or copper is joined to a cast iron pipe, the joint shall be lead caulked or screwed.

(3) Where a lead pipe is joined to a cast iron pipe, wrought iron pipe or steel pipe, the joint shall be wiped to a caulking ferrule or a soldering nipple.

(4) Soldering nipples shall not be used on drainage piping.

69. A joint in concrete sewer pipe shall be hot-poured, cemented or of the compression type.

70.-(1) A caulked joint in a cast iron drainage pipe shall be,

(a) made with the spigot end below the hub end in the direction of flow;

(b) firmly packed with oakum or hemp;

(c) secured with caulking lead not less than one inch deep; and

(d) tightly caulked.

(2) No paint, varnish, putty or other coating shall be applied on the jointing material until the joint has been inspected under these regulations.

71.-(1) The compound for a hot-poured joint shall be applied in a viscous state.

(2) Sulphur compound used in a hot-poured joint shall,

(a) be of such composition as not to re-soften at a temperature below 200°F.;

(b) have tensile strength at least sufficient that a bar one inch square in cross-section will not

break when subjected to a pull of 600 pounds after the bar has been immersed for ten cycles specified in subregulation 3.

(3) Each immersion cycle shall consist of,

(a) immersion for five minutes in water at 195 to 200°F.; and

(b) immersion for five minutes in water at 32°F.

(4) Asphaltic compound shall be of such composition as not to re-soften at a temperature below 160°F.

(5) An asphaltic hot poured joint shall be,

(a) rammed with twisted oakum;

(b) caulked closely; and

(c) at least one inch deep all around the pipe.

72.-(1) A cement joint for vitrified clay or concrete pipe larger than 6 inch, trade size, shall be made by ramming into the annular space between the pipes a closely-twisted gasket of hemp or oakum and filling with wet mortar consisting of equal parts of Portland cement and clean, sharp mortar sand.

(2) Before use, the mortar shall be tempered for not less than twenty minutes, but not more than one hour.

(3) A cement joint for piping of 6 inch or smaller, trade size, shall be made by grouting the annular space between the pipes with pure Portland cement.

(4) Every joint under subregulation 1 or 3, shall be carefully banked, and the inside of the piping shall be thoroughly cleaned and swabbed before the mortar or grout dries.

73. Joints in vitrified clay piping or between a vitrified clay pipe and a metal pipe shall be hot-poured, cemented or of the compression type.

FIXTURES

74.-(1) A fixture itemized in column 1 of Table 16 shall be deemed to produce a hydraulic load equal to the number of fixture units set out in column 2.

(2) A fixture, other than referred to in subregulation 1, having a waste pipe or trap of a trade size itemized in column 1 of Table 17 shall be deemed to produce a hydraulic load equal to the number of fixture units set out in column 2.

(3) A pump, ejector or other device or equipment discharging water, liquids or water-borne wastes in a continuous or intermittent flow shall be deemed to produce a hydraulic load equal to 2.4 fixture units per gallon per minute of flow.

75. A fixture, other than,

(a) a water-closet;

(b) a full flush urinal;

(c) a bed pan washer; or

(d) a fixture receiving wastes like those from fixtures specified in clauses a, b and c,

shall be provided with a strong metallic or porcelain strainer having an outlet area not less than that of the interior of the trap or waste pipe of the fixture.

76.-(1) A floor drain in any room where,

(a) a fixture other than a laundry-tub is installed; or

(b) food or beverage not in hermetically sealed containers is stored, prepared or served,

shall,

(c) be made of metal;

(d) have a strainer inlet;

(e) be properly trapped and vented; and

(f) be deemed a fixture.

(2) Where a floor drain, other than one referred to in subregulation 1, discharges directly or indirectly into drainage piping, it shall be properly trapped and so that under normal conditions of use a supply of water flows through the trap sufficient to keep its water seal from evaporating.

(3) No floor drain conveying sewage shall discharge into a municipal storm drain.

(4) An unvented floor drain shall be connected to an underground building drain.

77.-(1) Floor flanges for a fixture having an integral trap shall be,

(a) of brass;

(b) not less than 3/16 inch thick; and

(c) adapted for soldering to a lead or copper drainage pipe.

(2) Bolts, washers and nuts used in connection with the flanges shall be of brass.

78. Where lead pipe is used to connect a water-closet to a drainage pipe, the water-closet shall have a support of sufficient strength to sustain a live load of 250 pounds.

TRAPS

79.-(1) In this regulation,

(a) "mechanically controlled seal" means any device in a trap whereby the water seal of the trap is replenished by the action of moving parts;

(b) "moving parts" does not include valves and other devices controlling the flushing of the fixture served by the trap.

(2) No trap having a mechanically controlled seal shall be installed.

80.-(1) In this regulation, "double trapping" means a mode of construction of drainage piping by which the discharge from a fixture passes through two traps before reaching the building trap.

(2) Drainage piping shall be so constructed that there is no double trapping.

81. No vent shall be made in the crown of a trap.

82. A trap shall,

(a) have a trap seal not less than 1½ inches; and

(b) be so set that its water seal is kept constant.

83.-(1) A trap and the pipe connecting the trap to a fixture itemized in column 1 of Table 18 shall be of a trade size not smaller than thatprescribed in column 2.

(2) The inlet end of a trap shall not be smaller than the waste pipe to which it is connected.

(3) The outlet end of a trap shall not be connected to a waste pipe smaller than the trap it serves.

(4) The waste pipe for a fixture having an integral trap shall be not smaller than the fixture outlet.

84. The trap seal of a vitrified clay trap shall be not less than,

(a) two inches for a trap of 4 inch, trade size;

(b) 2½ inches for a trap of a trade size 6 inch or 8 inch.

85.-(1) Subject to subregulations 3 and 4, each fixture shall be separately trapped by a water sealed trap placed as close as possible to the fixture.

(2) The vertical leg of the waste pipe between a fixture, other than a fixture that is circuit or loop vented, and its trap shall not be more than three feet.

(3) Where sinks, on the same floor level, other than sinks through which food stuffs, excreta or other organic substances are discharged into drainage piping are arranged in a group of two or more, their waste pipes may connect to the same trap.

(4) The waste pipes of,

(a) a sink having two or three compartments with outlets at the same level;

(b) two adjoining laundry trays; or

(c) two or three adjoining sinks with outlets at the same level,

may connect to the same trap ifthe developed length of the waste pipe between the centre of the water level of the trap and the point where the waste pipe leaves the fixture that is farthest from the trap is not more than thirty-six inches.

86. A grease interceptor may serve as the trap for a two compartment or three compartment sink or a dish washing machine if the developed length between the inlet of the grease interceptor and the fixture outlet farthest from it is not more than thirty-six inches.

87. The waste p ipe from any fixture, other than a water-close shall not discharge into the trap, lead bend or lead stub of a water-closet.

88.-(1) Where a building trap is installed,

(a) subject to subregulation 2, the building trap shall be located in a place that is readily accessible f or the purpose of cleaning and repair and as close as practicable to the wall through which the drain leaves the building; and

(b) a vent pipe not smaller than 4 inch, trade size, shall be connected to the drain on the inlet side of the trap or within four feet of the inlet side of the trap.

(2) Where a building trap is installed for a building drain in an apartment building or a building that is a factory as defined in The Factory Shop and Office Building Act, the building trap may be installed outside the wall of the building if the building trap is accessible by means of a manhole lined with concrete or concrete blocks and securely covered.

(3) A building trap shall have an accessible cleanout.

89.-(1) Subject to subregulation 2, every fixture trap shall have at its lowest point a brass screw of a diameter not less than one half of that of the trap, and be so installed that it may be removed for cleaning purposes.

(2) Subregulation 1 does not apply to,

(a) a fixture trap combined with a fixture in which the trap dip is accessible for cleaning purposes; or

(b) a trap of which a portion is removable for cleaning purposes.

90.-(1) Where a,

(a) drainage pipe;

(b) service sink having a floor outlet; or

(c) pedestal urinal,

is connected to an earthenware trap, the connection shall be,

(d) made by means of a floor flange and in the manner prescribed in regulation 66; and

(e) sealed with a gasket of natural or synthetic rubber.

(2) The floor flange shall be set on a base of sufficient strength to support the fixture and the liquid in it.

(3) A stall urinal shall be connected to the waste pipe by a universal type strainer spud.

INTERCEPTORS

91.-(1) No interceptor shall be installed if a pocket of air is likely to form in it and retard its action.

(2) Every interceptor shall be vented and so located as to be readily accessible for cleaning.

(3) An interceptor installed to prevent motor oil or lubricating grease from passing into drainage piping shall be provided with two vents,

(a) that are connected to the interceptor at opposite ends of the interceptor;

(b) that are at least three inches in diameter; and

(c) that discharge into the open air at a point not less than seven feet above ground level

92. A grease interceptor shall be,

(a) of sufficient capacity to intercept all grease likely to flow into it under normal conditions; and

(b) located as near as practicable to the fixtures from which it receives discharges.

93. An interceptor for sand or other sediments shall have a trap seal of not less than six inches.

WASTE PIPES

94.-(1) Subject to subregulation 2, lead shall be used to make the connection between a water-closet and its waste pipe.

(2) Where the waste pipe is of copper, copper may be used to make the connection.

95.-(1) Not more than two water-closets shall discharge into a 3 inch horizontal branch.

(2) Not more than six water-closets shall discharge into a 3 inch soil stack.

96. A horizontal branch consisting of piping of a trade size itemized in column 1 of Table 19 shall not receive discharge from fixtures producing an aggregate hydraulic load greater than the number of fixture units prescribed in column 2.

STACKS

97.-(1) A waste stack or soil stack,

(a) not exceeding three storeys in height; and

(b) of a trade size itemized in column 1 of Table 20,

shall not receive discharge from fixtures producing an aggregate hydraulic load greater than the number of fixture units prescribed in column 2.

(2) A waste stack or soil stack,

(a) more than three storeys in height; and

(b) of a trade size itemized in column 1 of Table 21,

shall not receive discharge from fixtures producing an aggregate hydraulic load greater than the number of fixture units prescribed in column 2.

(3) The aggregate hydraulic load discharged at any storey of a stack referred to in subregulation 2 shall not be greater than the number of fixture units prescribed in column 3 of Table 21.

98.-(1) In this regulation, "footing" means a horizontal length of cast iron piping located underground and connecting the bottom or end of a waste pipe, soil stack or waste stack, to a building drain.

(2) Where a waste pipe, soil stack or waste stack terminates underground by connecting to a non-metallic pipe, it shall be provided with a footing,

(a) not less than thirty inches long; and

(b) of a diameter not less than,

(i) the size of the waste pipe, soil stack or waste stack, or

(ii) three inches,

whichever is the larger.

(3) Each stack of a diameter of three inches or more to which more than two water-closets are connected shall be provided with a footing of a diameter of four inches or larger.

VENTING

99. Regulations 100 to 129 do not apply to,

(a) area drains;

(b) backwater valves;

(c) leader traps; or

(d) subsoil catch basin traps.

100. Every system of drainage piping shall be protected by a vent system installed in the manner prescribed in this regulation and regulations 101 to 129.

101.-(1) Every vent pipe not terminating in open air shall be connected to a vent stack or stack vent.

(2) Every building drain shall be,

(a) provided with a vent stack or a soil stack of a diameter of not less than three inches that extends vertically through the roof of the building; or

(b) connected to a main vent that is erected in accordance with subregulation 3 of regulation 123 and is of a diameter of not less than three inches.

102.-(1) Subject to subregulation 4, a fixture trap shall have a protecting vent pipe connected to the waste pipe within five feet of the vertical trap inlet.

(2) A grease interceptor shall have a protecting vent pipe connected to the waste pipewithin five feet of the grease interceptor outlet.

(3) The section of waste pipe to which the vent pipe is connected shall not contain more than one 90 degree bend or two 45 degree bends.

(4) A protecting vent pipe that is not a stack vent is not required under subregulation 1,

(a) where the highest horizontal branch connected to a soil stack receives the discharge from only one fixture, and that fixture is not more than five feet from the soil stack; or

(b) where water-closets discharge into a soil stack at a point downstream from fixtures,

(i) that discharge an hydraulic load totalling not more than four fixture units into a soil stack with a diameter of not less th an three inches, and

(ii) that are all on one floor level; or

(c) where the fixtures,

(i) have waste outlets of a diameter of two inches or less and are located on the same floor level,

(ii) are connected to a soil stack or waste stack of a diameter of three inches or greater, and

(iii) discharge an hydraulic load totalling not more than four fixture units,

and where no other fixtures discharge into the soil stack or waste stack at a higher level.

(5) Waste pipes shall be installed and back vented at the same time.

103.-(1) Subject to subregulation 2, a fixture trap shall have a protecting vent so located that,

(a) the total fall in the waste pipe from the

trap weir to the vent is not greater than the diameter of the waste pipe; and

(b) the developed length of the waste pipe from the trap weir to the vent is not less than twice the diameter of the waste pipe.

(2) Subregulation 1 does not apply to,

(a) water-closets;

(b) pedestal urinals;

(c) trap standards;

(d) fixtures that depend on siphonic action for the proper functioning of the fixture; and

(e) connections that do not exceed one Y and one eighth bend between the trap outlet and the vent.

104. A vent pipe shall be of brass, cast iron, copper, galvanized open hearth iron, galvanized steel, galvanized wrought iron or lead.

105.-(1) The vent pipe venting a fixture trap of a size itemized in column 1 of Table 22 shall be of a trade size not smaller than that prescribed in column 2.

(2) No vent pipe smaller than $1\frac{1}{4}$ inch, trade size, shall be installed.

106.-(1) A branch vent, vent stack or stack vent of $1\frac{1}{4}$ inch trade size shall have connected to it not more than four vent pipes of $1\frac{1}{4}$ inch, trade size.

(2) A branch vent, vent stack or stack vent of $1\frac{1}{2}$ inch, trade size shall have connected to it not more than,

(a) twelve vent pipes of $1\frac{1}{4}$ inch, trade size;

(b) six vent pipes of $1\frac{1}{2}$ inch trade size, other than water-closet vent pipes;

(c) two water-closet vent pipes of $1\frac{1}{2}$ inch, trade size; or

(d) one water-closet vent pipe of $1\frac{1}{2}$ inch, trade size, and four other vent pipes of $1\frac{1}{4}$ inch, trade size.

(3) A loop vent, circuit vent, relief vent, branch vent, vent stack or stack vent of 2 inch trade size, shall have connected to it not more than,

(a) fifty vent pipes of $1\frac{1}{4}$ inch, trade size;

(b) twenty-five vent pipes of $1\frac{1}{2}$ inch, trade size, other than water-closet vent pipes; or

(c) six water-closet vent pipes of $1\frac{1}{2}$ inch, trade size; and

(i) twelve other vent pipes of $1\frac{1}{2}$ inch, trade size, or

(ii) twenty-five vent pipes of $1\frac{1}{4}$ inch, trade size.

(4) A branch vent, vent stack or stack vent of $2\frac{1}{2}$ inch, trade size, shall have connected to it not more than ten water-closet vent pipes of $1\frac{1}{2}$ inch, trade size, and

(a) twelve other vent pipes of $1\frac{1}{2}$ inch, trade size; or

(b) twenty-five vent pipes of $1\frac{1}{4}$ inch, trade size.

(5) The waste pipe from a fixture and having a diameter of not more than $1\frac{1}{4}$ inches may be connected to a circuit vent, loop vent, relief vent or yoke vent or to the point of connection between the main vent and the building drain, soil stack or waste stack if the fixture is on the same floor level as any other fixtures being vented by the same vent and if the fixture complies with regulations 101 to 103.

(6) For the purpose of this regulation, in calculating vent sizes each fixture trap represents one vent.

107. Where a single family dwelling has in the basement a vent pipe not smaller than $1\frac{1}{4}$ inch, trade size, that pipe may be used to vent one water-closet and one wash basin both located in the basement if the vent connecting the water-closet or the wash basin to the vent pipe is not smaller than $1\frac{1}{2}$ inch, trade size.

108. A vent pipe or vent stack of a trade size itemized in column 1 of Table 23 shall not have a length greater than that prescribed in column 2.

109.-(1) For the purposes of regulation 108, the length of branch vents, vent stacks and stack vents shall be computed in the manner prescribed in subregulations 2, 3 and 4.

(2) The length of a branch vent is the developed length between,

(a) its connection with the vent stack or stack vent; and

(b) the waste pipe served by the branch vent.

(3) The length of a vent stack is the developed length between,

(a) the lowest point at which the vent stack connects to the soil stack, waste stack or building drain; and

(b) the open air terminal of the vent stack.

(4) The length of a stack vent is the developed length between,

(a) the highest horizontal branch or fixture branch connected to the stack; and

(b) the open air terminal of the stack vent.

110. Where fixtures are circuit vented or loop vented, no vertical leg of a waste pipe of any of the fixtures shall be more than three feet long.

111. Where a vent pipe connects to a horizontal waste pipe,

(a) the connection shall be made above the centre line of the waste pipe; and

(b) the vent pipe shall not be connected to another vent pipe except at a point above the flood level rim of the fixture the other vent pipe is venting.

112. A connection between a vent pipe and a vent stack shall be above the flood level rim of the highest fixture served by the vent pipe.

113. A vent pipe shall be so constructed and graded that liquid accumulating in it drains by gravity through the drainage piping.

114.-(1) A back vent installed vertically may be used as a vent pipe for two fixtures when both waste pipes from the fixtures connect on the same level to a vertical waste pipe.

(2) The total fall and developed length prescribed in clauses a and b of subregulation 1 of regulation 103 apply to each waste pipe installed as permitted by subregulation 1.

(3) Where a dual vent is installed in conformance with subregulation 1 and 2, no additional vent is required for the traps of the two fixtures served by the two waste pipes.

115.-(1) Subject to subregulation 2 and 3 the waste pipe of not more than two fixtures may serve as the wet vent pipe for one other fixture that uses a half S or a P trap if,

(a) all such fixtures are on the same floor level;

(b) part of the waste pipe is a continuous waste and vent.

(c) the connections of both fixtures to the waste pipe serving as a wet vent pipe are made at the same level;

(d) the waste pipe serving as a wet vent pipe is of a trade size not less than,

(i) 1¼ inches where the fixture being wet vented is connected to a horizontal waste pipe of a trade size of 1¼ inches or 1½ inches;

(ii) 1½ inches where the fixture being wet vented is connected to a horizontal waste pipe of a trade size of 2 inches, or

(iii) 2 inches where the fixture being wet vented is connected to a horizontal waste pipe of a trade size of 3, 4 or 6 inches;

(e) the length of the waste pipe of the fixture being wet vented between the trap inlet and the connection to a waste pipe:

(i) that becomes the wet vent and

(ii) that has a grade of not more than $\frac{1}{4}$ inch to the foot

is a developed length of not less than eighteen inches and the waste pipe of the fixture being wet vented complies with regulations 102 and 103.

(f) the waste pipe serving as a wet vent pipe has a developed length of not more than twenty feet.

(2) Clauses d and e of subregulation 1 do not apply to a water-closet, trap standard slop sink, bed pan washer or a pedestal urinal.

(3) Where a water-closet, trap standard slop sink, bed pan washer or pedestal urinal is wet vented, the waste pipe serving as a wet vent shall be of a trade size of at least 2 inches.

116.-(1) A waste pipe to which sanitary units, floor drains, trap standard slop sinks or traps serving shower heads are connected in series on the same floor level may be vented by a circuit or loop vent if the circuit or loop vent is connected to the waste pipe above the centre line of the waste pipe.

(2) Where a waste pipe connected to a building drain, waste stack or soil stack is circuit vented and a fixture discharges above the connection the waste pipe shall be provided with a relief vent.

(3) Where not more than six sanitary units, floor drains, trap standard slop sinks or traps serving shower heads are connected in series, the circuit or loop vent shall be connected in front of the last sanitary unit, floor drain, trap standard slop sink or trap serving a shower head in the series.

(4) Where more than six sanitary units, floor drains, trap standard slop sinks or traps serving shower heads are connected in series, a vent shall be provided for each multiple of six sanitary units, floor drains, trap standard slop sinks or traps serving shower heads and a vent shall be provided for any such fixtures in addition to six or any multiple of six, as the case may be and the vent shall be in addition to the loop or circuit vent referred to in subregulation 1.

(5) A loop or circuit vent or vent required by this regulation shall be of a trade size of at least 2 inches and may have other vents connected to it as provided in subregulation 3 of regulation 106.

(6) No waste shall be discharged into a loop or circuit vented horizontal branch pipe from a higher floor level.

117. Where a loop or circuit vent is connected to a waste pipe and a bend is connected to a Y in the waste pipe, the bend shall be not more than thirty-six inches in length.

118.-(1) Where two or more circuit vented horizontal branches serving a total of not more than six sanitary units are connected to the same horizontal branch, the horizontal branches may have a combined relief vent.

(2) The vent pipes shall be connected to the relief vent above the flood level rim of the highest fixtures discharging into the horizontal branches.

119.-(1) Where a soil stack or waste stack has an offset that is less than ten feet in length and is at an angle of more than 45 degrees from the true vertical plane and when there are fixtures connected to the stack on two or more storeys above the offset, no waste pipe shall be connected to the offset.

(2) Where a waste pipe is connected to a soil stack or waste stack that has an offset referred to in subregulation 1, the connection shall be made below the lower bend of the offset.

120.-(1) Where a soil stack or a waste stack extends through ten or more storeys of a building, the stack shall be yoke vented for each section of five storeys or part thereof counted from the top down.

(2) In each section,

(a) the lower end of the yoke vent shall connect to the soil stack or waste stack through a Y below the horizontal branch from the lowest floor of the section; and

(b) the upper end of the yoke vent shall connect to the vent stack not less than three feet above the level of the lowest floor of the section; and

(c) the yoke vent shall be not less than two inches in diameter.

121.-(1) Subject to subregulations 2 and 3, every sewage tank shall be vented by a vent pipe not smaller than one trade size smaller than the inlet pipe of the sewage tank.

(2) Where the size of vent pipe as computed under subregulation 1 is greater than 3 inches, trade size, vent pipe of 3 inch trade size may be used.

(3) Where the inlet pipe of the sewage tank is 3 inches, trade size, the vent pipe shall be not less than 2 inches, trade size.

122.-(1) A vent pipe of a trade size itemized in column 1 of Table 24 shall be deemed to have the cross-sectional area prescribed in column 2.

(2) Where more than two vent pipes are connected to a trunk, the trunk shall be of a size having a cross-sectional area not less than 40 per cent of the sum of the cross-sectional areas of all the vent pipes connected to it.

(3) Where two vent pipes of 3 inch or larger, trade size are connected to a trunk, the trunk shall be at least one trade size listed in column 1 of Table 24 larger than the larger of the two pipes connected to it.

123.-(1) Where back vents, relief vents, circuit vents or loop vents are required in two or more storeys of a waste stack or soil stack, a vent stack shall be installed in conjunction with that stack.

(2) The vent stack shall,

(a) have its lower end connected to,

(i) the waste stack or soil stack at, or below the lowest horizontal waste pipe, or

(ii) the building drain; and

(b) extend to the open air independently, or through a header.

(3) Where subregulation 1 applies as a result of alteration of the vent system in an existing building, the vent stack may be erected vertically outside the building and changes in direction of the vent stack shall be made by eighth-bends and every part shall be vertical.

124.-(1) A waste stack or soil stack shall be vented at a point above the flood level rim of the highest fixture discharging directly or indirectly into it.

(2) The venting shall be effected,

(a) by extension of the stack with pipe of a trade size of not less than 3 inches vertically through the roof of the building; or

(b) by connecting the stack to a vent stack by means of a vent pipe that slopes upwards from the waste stack or soil stack to the vent stack.

125.-(1) Stack vents and vent stacks may be connected together at a point above the flood level rim of the highest fixture served by either of them and thence extended in a single header to the open air.

(2) The header shall be of a developed length computed in accordance with subregulation 3 and with regulation 106.

(3) The developed length of a header is that of the longest of the vent pipes so connected together and including the header and is calculated by commencing at the base of the stack most distant from the header and continuing through that stack to the header and thence to its terminal in open air.

126. The discharge end of a stack vent, vent stack or vent pipe terminating in open air shall be located a distance not less than three feet above, or twelve feet away from any air inlet, window or door of the building or of any adjacent building.

127.-(1) The part of a waste stack, soil stack or vent stack that extends through and above a roof or wall shall be of a trade size not smaller than 3 inch.

(2) Where an increaser is installed, the bottom of the larger pipe shall be below the underside of the roof.

128.-(1) The discharge end of a vent pipe extending through a roof shall extend through the roof at least,

(a) six inches when the roof is not accessible for use by persons;

(b) six feet above a roof that is accessible for use by persons.

(2) Where the discharge end is so located that it may become clogged by any cause, it shall be fitted with a shield so constructed as to prevent clogging.

BACKWATER VALVES

129.-(1) No backwater valve shall be installed unless,

(a) all its bearing parts and balls are of corrosion resisting material; and

(b) it is of such construction as to ensure a positive mechanical seal.

(2) A backwater valve shall be so located that it can be readily examined and cleaned.

BUILDING DRAINS AND BUILDING SEWERS

130. No steam or liquid having a temperature higher than 140°F. shall be discharged into a building.

131. Every building drain shall be extended to the soil stack farthest from the point where the building drain enters the building and shall be not less than four inches in diameter.

132.-(1) A slope of not less than $\frac{1}{4}$ inch a foot of run shall be provided,

(a) for a waste pipe; and

(b) for a horizontal drainage pipe not larger than 3 inch, trade size.

(2) A horizontal drainage pipe larger than 3 inch, trade size, shall have a slope of not less than 1/8 inch a foot of run.

(3) Where conditions do not permit a building drain or building sewer to have the slope prescribed in subregulation 1 or 2 it may have a lesser slope, but not so that the rate of flow of the liquids is less than two feet a second.

133. The hydraulic load discharged into a building drain or building sewer of a trade size itemized in column 1 of Table 25 shall not be greater than the number of fixture units prescribed in,

(a) column 2, where the pipe has a slope of 1/16 inch a foot of run;

(b) column 3, where the pipe has a slope of 1/8 inch a foot of run;

(c) column 4, where the pipe has a slope of $\frac{1}{4}$ inch a foot of run; or

(d) column 5, where the pipe has a slope of $\frac{1}{2}$ inch a foot of run.

CLEAN-OUTS

134.-(1) Every clean-out cover shall be secured by a gasket and bolt or be screwed.

(2) Every nut on a clean-out shall be of brass or other equally non-corroding metal.

(3) The body of a clean-out shall have a thickness not less than that prescribed for the wall of piping of the same metal and trade size.

135.-(1) A clean-out plug shall,

(a) be of brass or other equally non-corroding metal;

(b) have subject to regulation 2 a wall thickness equal to the thickness of the wall of the piping into which the clean-out plug fits; and

(c) have a cover with a solid raised projection, or a recessed socket, so that the cover may be removed.

(2) Where a clean-out plug is hollow or stamped out, the wall thickness of the plug shall be not less than 1/8 inch.

136. A clean-out connected to a pipe,

(a) up to 4 inch, trade size, shall be of the same trade size as the pipe; and

(b) larger than 4 inch, trade size, shall be not smaller than 4 inch, trade size.

137.- (1) A clean-out shall be so installed as to be readily accessible.

(2) Where a clean-out is fitted to a pipe under ground, the clean-out shall be made readily accessible by extending it above ground or by providing an access pit.

138.-(1) A clean-out shall be installed in the building drain as near as possible to and on the downstream side of the building trap.

(2) A clean-out shall be installed at or as close as practicable to the foot of each waste stack or soil stack and so that it may be readily used.

139.-(1) Every waste pipe connected to a sink shall be provided with sufficient clean-outs to reach each twenty feet of the waste pipe or fraction thereof.

(2) Clean-outs in horizontal drainage piping shall be at intervals not greater than,

(a) fifty feet, where the piping is of 4 inch, or smaller, trade size; or

(b) one hundred feet, where the piping is of larger trade size.

SEWAGE TANKS AND SUMPS

140.-(1) A subdrain carrying sewage from a fixture shall discharge by gravity into a sewage tank.

(2) A subdrain carrying ground water shall discharge by gravity into a sump.

(3) The sewage shall be discharged by a pump, or mechanical ejector from the sewage tank into the building sewer or building drain and shall not pass through a building trap.

(4) The pump or mechanical ejector shall be so designed and have capacity great enough that it empties the sewage tank at least once in every period of two hours.

(5) Every sewage tank and every sump constructed of a material other than steel or cast iron shall be separated by a space of not less than six inches.

TESTING

141.-(1) Each drain shall be tested by rolling through it a ball made of hard material sufficiently heavy to prevent it from floating.

(2) The diameter of the ball shall be,

(a) two inches, for piping of 3 inch, or larger, trade size; and

(b) one inch for smaller piping.

142. In regulation 145 to 146, "outlet" means the opening in drainage piping through which the water or air used to make a water test or air test, may escape to the open air, to any part of the piping not under test or to the main sewer.

143.-(1) Any test may be applied to any part of drainage piping separately from the remainder of the drainage piping.

(2) Where a test that is required by these regulations is being made, sufficient clean-outs shall be removed to ensure that the water, air or smoke, as the case may be, has reached every point of the piping being tested.

144. After drainage piping is connected but before the fixtures are connected to it, the piping shall be tested by the water test or the air test, applied in the manner prescribed by regulation 145 or 146.

145. A water test shall be made by,

(a) tightly closing all outlets, except the highest, in the piping being tested;

(b) filling the piping completely with water until the water is steadily overflowing at the highest outlet of the piping;

(c) visually examining every joint of the piping after the water has been in the piping for not less than fifteen minutes and while still in it; and

(d) ensuring that no water is seeping out or leaking at any point.

146. An air test shall be made by,

(a) securely attaching an air compressor or similar pneumatic testing apparatus to the piping at any convenient outlet of the piping tested;

(b) tightly closing all other outlets of the piping;

(c) forcing air into the piping until the constant internal pneumatic pressure is not less than 5 p.s.i.; and

(d) ensuring that air is not escaping from the piping at any point after that pressure has remained constant for not less than fifteen minutes and while it is still constant without any additional air being forced in or a change occurring in the temperature of the piping greater than 5°F.

147.-(1) After all fixtures have been connected to the piping, a final test shall be made of the drainage piping and venting thereof.

(2) The test shall be made by,

(a) filling all traps of the piping being tested to their respective minimum water seals;

(b) completely filling the piping and vents with a black, pungent smoke by any convenient method;

(c) closing every vent stack, stack vent, soil stack and waste stack after the smoke has risen steadily through them;

(d) adding into the piping and vents more smoke sufficient to build up an internal pressure equivalent to a 1 inch water column; and

(e) ensuring that no smoke is escaping from the piping or vents at any point after that pressure has been maintained constant for not less than fifteen minutes and while it is still constant.

PART 4

FIXTURES

148.-(1) Every fixture shall be connected to drainage piping.

(2) The room or compartment in which a fixture is located shall be adequately ventilated.

(3) All walls and flooring around or under a bathtub, shower bath, or sanitary unit in a public building shall be of a material that is impervious to water.

149. Fixtures other than drinking fountains or refrigerators or other food containers shall not have an indirect waste pipe.

150.-(1) A fixture shall be so installed as to be readily accessible for cleansing.

(2) A fixture having an integral trap shall be set plumb and true.

(3) Subject to subregulation 4, every fixture shall be so installed that all walls and flooring around or under it are easily accessible for cleansing.

(4) Where a fixture is built into the structure of a room or compartment, it shall be so installed that water does not accumulate on the walls or flooring around or under the fixture.

151. Every fixture shall be provided with such supply pipes and fittings as will supply sufficient water for flushing the fixture to the extent necessary to keep it in sanitary condition.

152. The pipe supplying water to a fixture itemized in column 1 of Table 26 shall be of a trade size not smaller than that prescribed in column 2.

153. Non-potable water shall not be distributed to a bathtub, kitchen, scullery sink, shower bath or wash basin.

154. No trough urinal shall be installed.

155.-(1) In subregulation 2, "frost proof closet" means a water-closet so designed that,

(a) the trap and the water supply control valve are installed below frost line; and

(b) the bowl does not retain water.

(2) No frost proof closet shall be installed so as to discharge directly or indirectly into a main sewer

156.-(1) Every fixture shall be of such materials, construction and design as will ensure that the exposed surface of all parts are,

(a) hard;

(b) smooth;

(c) impervious to cold or hot water;

(d) readily accessible for cleansing; and

(e) free from,

(i) blemishes, or

(ii) cracks or other interstices,

that may harbour germs or impede thorough cleansing.

(2) All other parts of the fixture and all the area around the fixture so closely adjacent to it that germs may harbour therein shall be of such materials, construction and design as will ensure that the fixture and the adjacent area can be readily maintained in a thoroughly sanitary condition.

(3) A pipe carrying waste from,

(a) a refrigerator or ice box;

(b) an appliance, device or apparatus that is used for the storage, preparation or processing of food or drink;

(c) a sterilizer; or

(d) a water still, water treatment device or water operated device,

shall be an indirect waste pipe.

157. A water-closet bowl shall be,

(a) of vitreous china, vitreous glazed earthenware or any material having equally smooth, hard, impervious surface;

(b) in one piece;

(c) provided with integral flushing-rims so constructed as to flush the entire interior of the bowl;

(d) rigidly connected to the waste pipe; and

(e) where the water-closet bowl is in a public building, equipped with a seat with an open front.

158.-(1) A water-closet tank shall have,

(a) water capacity; and

(b) flush valve equipment,

such as will ensure at all times a supply of water sufficient to flush normal solids and soil out of the bowl.

(2) A flush pipe shall have an internal diameter not less than that of the spud on the tank.

159.-(1) A urinal shall be of a material prescribed by clause a of regulation 157.

(2) A urinal of a siphon jet, blow out or pedestal, type shall have its flushing rim and its trap integral with it.

160. A urinal tank shall have,

(a) water capacity;

(b) flush valve equipment; and

(c) pipe connecting to the urinal,

such as will ensure at all times a supply of water sufficient to flush the normal liquids and solids out of the urinal.

161.-(1) A wash basin,

(a) shall be of a material prescribed by clause a of regulation 157; and

(b) shall have a waste pipe not smaller than $1\frac{1}{4}$ inch, trade size.

(2) The waste opening shall be equipped with a strainer.

(3) Where a stopper is provided it shall be so arranged that the standing water in the fixture does not rise in the overflow pipe when the stopper is used, or remain in the overflow pipe when the fixture is empty.

162. The floor of a shower bath shall be of materials having a hard surface, impervious to water and shall be provided with,

(a) a waste fitting not smaller than $1\frac{1}{2}$ inch, trade size; and

(b) a strainer at the waste outlet.

163. A bath tub shall be,

(a) of material having a smooth, hard interior surface, impervious to water; and

(b) equipped with a waste fitting not smaller than $1\frac{1}{2}$ inch, trade size.

164.-(1) The overflow pipe from a fixture shall be connected on the inlet side of the trap and so arranged that it can be readily and effectively cleansed.

(2) An overflow fitting shall be so arranged that the standing water in the fixture does not rise in the overflow pipe when the stopper is used and all water drains from the overflow pipe when the fixture is empty.

165.-(1) The fixture through which an indirect waste pipe discharges shall be open, vented and located in an accessible, ventilated place.

(2) Subject to subregulation 3, an air gap conforming to the requirements of regulation 41 shall be provided between,

(a) the outlet end of an indirect waste pipe; and

(b) the flood level rim of the fixture receiving the discharge from that pipe.

(3) The length of the air gap shall be not less than the nominal diameter of tne indirect waste pipe.

166.-(1) Every indirect waste pipe shall be trapped, but, subject to subregulation 2, need not be vented.

(2) Where an indirect waste pipe receives the discharge from,

(a) drinking fountains; or

(b) refrigerators,

located on three or more storeys, it shall be vented by being extended to open air.

167. An indirect waste pipe from a refrigerator or similar

food container shall have clean-outs at all angles and be so arranged as to permit flushing and cleansing.

REVOCATION

168. Ontario Regulations 261/52 and 52/53 are revoked.

DATED this day of July, A.D. 1960.

ONTARIO WATER RESOURCES COMMISSION

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Chairman

Table 1

LEAD WATER SERVICE PIPING

Column 1	Column 2
Piping, trade size, in inches	Minimum weight a yard in pounds
3/8	2-1/4
1/2	3
5/8	4-1/2
3/4	5-1/4
1	7-1/2
1-1/4	9
1-1/2	12-3/4
1-3/4	15
2	18

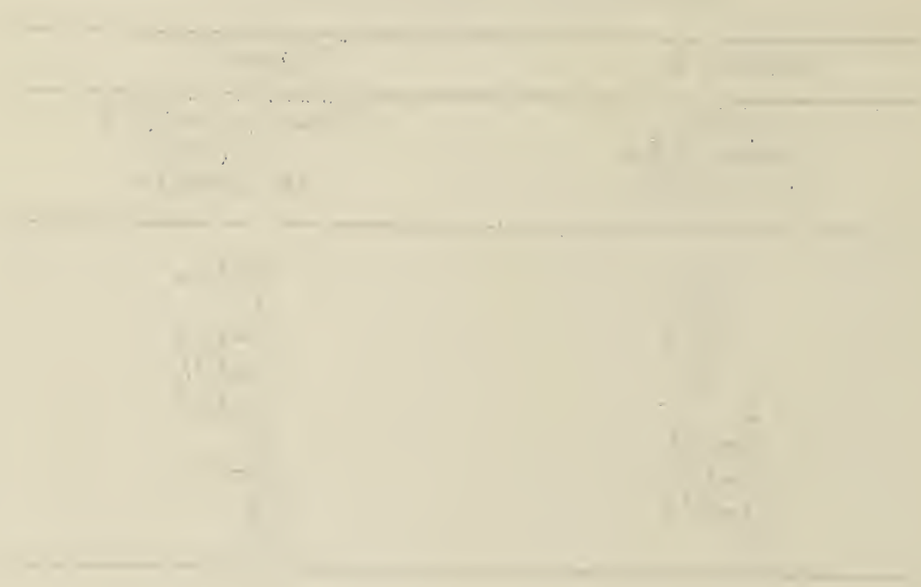

Table 2

COPPER OR BRASS PIPE

Column 1 Pipe, trade size, in inches	Column 2 Outside diameter, in inches	Standard Pipe			Extra Heavy Pipe		
		Column 3 Nominal wall thickness in inches	Nominal Weight in Pounds per Foot of length		Column 6 Nominal wall thickness in inches	Nominal Weight in Pounds per Foot of length	
			Column 4 Copper	Column 5 Brass		Column 7 Copper	Column 8 Brass
1/8	0.405	0.0620	0.259	0.253	0.100	0.371	0.363
1/4	0.540	0.0825	0.460	0.450	0.123	0.624	0.611
3/8	0.675	0.0905	0.643	0.630	0.127	0.847	0.829
1/2	0.840	0.1075	0.957	0.938	0.149	1.25	1.23
3/4	1.050	0.1140	1.30	1.27	0.157	1.71	1.67
1	1.315	0.1265	1.83	1.79	0.182	2.51	2.46
1-1/4	1.660	0.1460	2.69	2.63	0.194	3.46	3.39
1-1/2	1.900	0.1500	3.20	3.13	0.203	4.19	4.10
2	2.375	0.1565	4.23	4.14	0.221	5.79	5.67
2-1/2	2.875	0.1875	6.14	6.00	0.280	8.84	8.66
3	3.500	0.2190	8.75	8.56	0.304	11.82	11.57
3-1/2	4.000	0.2500	11.41	11.17	0.321	14.37	14.07
4	4.500	0.2500	12.94	12.66	0.341	17.25	16.89
4-1/2	5.000	0.2500	14.46	14.15	0.375	21.10	20.66
5	5.563	0.2500	16.21	15.85	0.375	23.67	23.18
6	6.625	0.2500	19.41	18.99	0.437	32.93	32.21
7	7.625	0.2815	25.17	24.63	0.500	43.34	42.43
8	8.625	0.3125	31.63	30.95	0.500	49.42	48.39
9	9.625	0.3440	38.83	38.03	0.500	55.56	54.34
10	10.750	0.3655	46.22	45.20	0.500	62.40	61.05

Table 3

BRASS CAULKING FERRULES

Column 1	Column 2	Column 3	Column 4
Trade size in inches	Minimum actual inside diameter of ferrule, in inches	Minimum length, in inches	Minimum weight, in pounds
2 x 1¼	1½	4½	1
2 x 1½	1¾	4½	1
2	2¼	4½	1
3	3¼	4½	1
4	4¼	4½	2½

Table 4

BRASS SOLDERING NIPPLES

Column 1	Column 2	Column 3
Trade size, in inches	Minimum length, in inches	Minimum weight
1¼	3	6 oz.
1½	3	8 oz.
2	3	14 oz.
2½	4	1 lb. 6 oz.
3	4	2 lb.
4	4	3 lb. 8 oz.

Table 5

BRASS SOLDERING HUBS

Column 1	Column 2	Column 3	Column 4
Hub, trade size in inches	Minimum actual inside diameter, in inches	Minimum overall length, in inches	Minimum weight in ounces
3x2	3	2-7/16	17
2x1½	2-3/8	2-3/16	14
2x1¼	2-3/8	2-3/16	13

Table 6

WELDED ALLOYED OPEN HEARTH IRON PIPING

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Pipe, trade size, in inches	Minimum wall-thickness ininches	Minimum internal hydrostatic pressure for furnace butt-welded pipe in p.s.i.	Minimum internal hydrostatic pressure for electric-welded pipe, in p.s.i.	Minimum weight a linear foot when threaded and couplings attached, in pounds	Minimum number of threads in each threaded inch
1/4	.068	700		0.24	27
1/8	.088	700		0.42	18
3/8	.091	700		0.57	18
1/2	.109	700		0.85	14
	.113	700		1.13	14
1	.133	700		1.68	11-1/2
1-1/4	.140	800	1000	2.28	11-1/2
1-1/2	.145	800	1000	2.73	11-1/2
2	.154	800	1000	3.68	11-1/2
2-1/2	.203	800	1000	5.82	8
3	.216	800	1000	7.62	8
3-1/2	.226	1200		9.20	8
4	.237	1200		10.89	8
5	.258	1200		14.81	8
6	.280	1200		19.18	8
8	.322		1200	28.81	8
10	.365		1000	41.13	8
12	.375		1000	50.71	8

Table 7

WELDED OR SEAMLESS STEEL PIPING

Column 1	Column 2	Column 3	Column 4	Column 5
Pipe, trade size, in inches	Minimum actual outside diameter, in inches	Minimum wall-thickness, in inches	Minimum weight for each linear foot threaded and with couplings attached, in pounds	Minimum number of threads in each threaded inch
1/8	0.405	.068	0.25	27
1/4	0.540	.088	0.43	18
3/8	0.675	.091	0.57	18
1/2	0.840	.109	0.85	14
3/4	1.050	.113	1.13	14
1	1.315	.133	1.68	11-1/2
1-1/4	1.660	.140	2.28	11-1/2
1-1/2	1.900	.145	2.73	11-1/2
2	2.375	.154	3.68	11-1/2
2-1/2	2.875	.203	5.82	8
3	3.500	.216	7.62	8
3-1/2	4.000	.226	9.20	8
4	4.500	.237	10.89	8
5	5.563	.258	14.81	8
6	6.625	.280	19.19	8
8	8.625	.277	25.00	8
10	10.750	.279	32.00	8
12	12.750	.375	45.00	8

Table 8

WROUGHT IRON PIPING

Column 1	Column 2	Column 3	Column 4	Column 5
Pipe, trade size, in inches	Minimum actual outside diameter, in inches	Minimum wall-thickness, in inches	Minimum weight for each linear foot, threaded and with couplings, in pounds	Minimun number of threads in each threaded inch
1/8	0.405	.070	0.25	27
1/4	0.540	.090	0.43	18
3/8	0.675	.093	0.57	18
1/2	0.840	.111	0.85	14
3/4	1.050	.115	1.13	14
1	1.315	.136	1.68	11-1/2
1-1/4	1.660	.143	2.28	11-1/2
1-1/2	1.900	.148	2.73	11-1/2
2	2.375	.158	3.68	11-1/2
2-1/2	2.875	.208	5.82	8
3	3.500	.221	7.62	8
3-1/2	4.000	.231	9.20	8
4	4.500	.242	10.89	8
5	5.563	.263	14.81	8
6	6.625	.286	19.19	8
8	8.625	.283	25.00	8
10	10.750	.284	32.00	8
12	12.750	.336	45.00	8

Table 9

COPPER TUBE

(TYPE DWV)

Column 1 Tube Trade in inches	Column 2 Actual Outside Diameter in inches	Permissible Variation in Mean Outside Diameter in inches		Wall Thickness (Inches)								** THEORETICAL Weight per Foot in pounds			
				Type K		Type L		Type M		Drainage Tube					
		Column 3 Annealed	Column 4 Drawn	Column 5 Nominal	Column 6 Permissible Variation	Column 7 Nominal	Column 8 Permissible Variation	Column 9 Nominal	Column 10 Permissible Variation	Column 11 Nominal	Column 12 Permissible Variation	Column 13 Type K	Column 14 Type L	Column 15 Type M	Column 16 Drainage Tube
1/4	0.375	0.002	0.001	0.035	0.004	0.030	0.0035	-	-	-	-	0.145	0.126	-	-
3/8	0.500	0.0025	0.001	0.049	0.004	0.035	0.0035	-	-	-	-	0.269	0.198	-	-
1/2	0.625	0.0025	0.001	0.049	0.004	0.040	0.0035	-	-	-	-	0.344	0.285	-	-
5/8	0.750	0.0025	0.001	0.049	0.004	0.042	0.0035	-	-	-	-	0.418	0.362	-	-
3/4	0.875	0.003	0.001	0.065	0.0045	0.045	0.004	-	-	-	-	0.641	0.455	-	-
1	1.125	0.0035	0.0015	0.065	0.0045	0.050	0.004	-	-	-	-	0.839	0.655	-	-
1-1/4	1.375	0.004	0.0015	0.065	0.0045	0.055	0.0045	0.042	0.0035	0.040	0.0035	1.04	0.854	0.682	0.650
1-1/2	1.625	0.0045	0.002	0.072	0.005	0.060	0.0045	0.049	0.004	0.042	0.0035	1.36	1.14	0.940	0.809
2	2.125	0.005	0.002	0.083	0.007	0.070	0.006	0.058	0.006	0.042	0.005	2.06	1.75	1.46	1.07
2-1/2	2.625	0.005	0.002	0.095	0.007	0.080	0.006	0.065	0.006	-	-	2.93	2.48	2.03	-
3	3.125	0.005	0.002	0.109	0.007	0.090	0.007	0.072	0.006	0.045	0.005	4.00	3.33	2.68	1.69
3-1/2	3.625	0.005	0.002	0.120	0.008	0.100	0.007	0.083	0.007	-	-	5.12	4.29	3.58	-
4	4.125	0.005	0.002	0.134	0.010	0.110	0.009	0.095	0.009	0.058	0.008	6.51	5.38	4.66	2.87
5	5.125	0.005	0.002	0.160	0.010	0.125	0.010	0.109	0.009	0.072	0.008	9.67	7.61	6.66	4.43
6	6.125	0.005	0.002	0.192	0.012	0.140	0.010	0.122	0.010	0.083	0.009	13.9	10.2	8.92	6.10
8	8.125	0.006	+0.002 -0.004	0.271	0.016	0.200	0.014	0.170	0.014	-	-	25.9	19.3	16.5	-
10	10.125	0.008	+0.002 -0.006	0.338	0.018	0.250	0.016	0.212	0.015	-	-	40.3	30.1	25.6	-
12	12.125	0.008	+0.002 -0.006	0.405	0.020	0.280	0.018	0.254	0.016	-	-	57.8	40.4	36.7	-

** Tube shall not vary in weight by more than 7% from theoretical weight shown.

Table 10

ASBESTOS-CEMENT SEWER PIPING

Column 1	Column 2	Column 3	Column 4	Column 5
Piping, trade size, in inches	Minimum wall-thickness, in inches	Flexural strength, minimum total load, in pounds	Maximum span, in feet	Supporting strength, minimum external 3-bearing load, in pounds
4	.22	550	9	1740
5	.22	900	9	1680
6	.22	1290	9	1420
8	.35	4300	12	2500
10	.37			2200
12	.41			2200
14	.41			2200
16	.45			2200
18	.48			2100
20	.52			2200
24	.58			2200

Table 11

BITUMINIZED-FIBRE DRAIN PIPING OR SEWER PIPING

Column 1	Column 2	Column 3	Column 4	Column 5
Piping, trade size, in inches	Minimum wall-thickness in inches	Minimum flat-plate crushing load, in pounds for each linear foot	Minimum length of coupling, in inches	Flat-plate crushing load in pounds for each linear foot
2	.23	1100	2.90	270
3	.28	1100	3.42	315
4	.32	1100	3.92	370
5	.41	1300	3.92	430
6	.46	1300	3.92	430
8	.57	1600	5.00	670

Table 12

CAST IRON DRAINAGE PIPE OR VENT PIPE

Column 1	Column 2	Column 3
Piping, trade size, in inches	Minimum weight for each 5 foot length, in pounds	Minimum weight for ea. 5 foot length, in pounds Extra heavy
2	20	25
3	30	42
4	42	57
5	55	70
6	68	88
8	140	140
10	205	205
12	250	250
15	350	350

Table 13

THREADED CAST IRON PIPING

Column 1	Column 2	Column 3	Column 4
Piping, trade size, in inches	Minimum wall-thickness, in inches	Minimum weight for each linear foot, in pounds	Minimum thread-length, in inches
1¼	.187	3.033	0.42
1½	.195	3.666	0.42
2	.211	5.041	0.43
2½	.241	7.032	0.68
3	.263	9.410	0.76
4	.294	13.751	0.84
5	.328	19.069	0.93
6	.378	26.223	0.95
8	.438	39.820	1.06
10	.438	50.234	1.21
12	.438	60.036	1.36

Table 14

CONCRETE SEWER PIPING

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Piping, trade size, in inches	Minimum wall-thickness of barrel, in inches	Minimum internal diameter of barrel, in inches	Supporting strength, minimum 3-bearing load for each linear foot, in pounds	Minimum internal diameter of socket-mouth, in inches	Minimum depth of socket, in inches
4	9/16	4	1000	6	1½
6	5/8	6	1100	8¼	2
8	3/4	8	1300	10¾	2¼
10	7/8	10	1400	13	2½
12	1	12	1500	15¼	2½
15	1-1/4	15	1750	18	2½
18	1-1/2	18	2000	22¼	2¾
21	1-3/4	21	2200	26	2¾
24	2-1/8	24	2400	29½	3

Table 15

VITRIFIED-CLAY PIPING

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Piping, trade size, in inches	Minimum wall-thickness of barrel, in inches	Minimum internal diameter of barrel, in inches	Supporting strength, minimum 3-bearing load for each linear foot, in pounds	Minimum internal diameter of socket-mouth, in inches	Minimum depth of socket, in inches
4	1/2	4	1000	5	1-3/4
6	5/8	6	1000	8-1/4	2-1/4
8	3/4	8	1000	10-1/2	2-1/2
9	3/4	9	1050	11-5/8	2-1/2
10	7/8	10	1100	12	2-1/2
12	1	12	1200	15-1/8	2-3/4
15	1-1/4	15	1370	18-3/4	2-3/4
18	1-1/2	18	1665	22-1/4	3
21	1-3/4	21	1995	25-7/8	3-1/4
24	2	24	2400	29-3/8	3-3/8

Table 16

LOAD FACTORS OF FIXTURES

Column 1	Column 2
Fixture	Number of fixture-units
Bath room group, consisting of 1 water closet, 1 wash basin and 1 bath tub or shower stall	8
Bath tub with or without overhead shower	1½
Bed Pan Washer	6
Bidet	1½
Combination of sink and laundry tray	2
Combination of sink and tray with food disposal unit	4
Cuspidor or dental unit	1
Dental lavatory	1
Dish washer, domestic type	1½
Drinking fountain	1
Floor drain	3
Household ice box	1
Kitchen sink,	1½
(a) two compartment	3
(b) three compartment	4½
Two or three compartment Laundry tray	1½
Shower stall	1½
Showers in a group, each head	1½
Sinks	
(a) flushing rim, with valve	6
(b) pot, scullery	4
(c) service, trap standard type	3
(d) service, P-trap type	2
(e) surgeon's	3
Urinals	
(a) pedestal, siphon-jet or blow out type	4
(b) stall, wash out type	2
(c) wall, lip type	1½
Wash basin	
(a) 1¼-inch trap	1
(b) 1½-inch trap	1½
Wash sink, circular or multiple type, each set of faucets	2
Water closet	
(a) tank operated	6
(b) valve operated	8
Beer dispenser	1½
Dead fish tank	1½
Domestic washing machine	1½
Dish washer commercial	4
Potato and vegetable washers and peeler	4
Glass washer commercial	4
Cocktail mixing unit	1½
Small laboratory sinks	1

Table 17

LOAD-FACTORS OF FIXTURES

Not Itemized in Table 16

Column 1	Column 2
Size of waste-pipe, or trap, in inches	Number of fixture-units
1-$\frac{1}{4}$ or less	1
1-$\frac{1}{2}$	2
2	3
2-$\frac{1}{2}$	4
3	5
4	6

Table 18

MINIMUM SIZES OF TRAPS AND OUTLET-CONNECTIONS FOR FIXTURES

Column 1	Column 2
Fixture	Minimum trade size of trap and fixture-outlet connection, in inches
Bath tub with or without overhead shower	1½
Beer cabinet	1½
Bed Pan Washer	3
Bidet	1¼
Combination of sink and laundry tray	1½
Cuspidor or dental unit	1¼
Dental lavatory	1¼
Dish washer, domestic type	1½
Drinking fountain	1¼
Floor drain	2
Two or three compartment Laundry tray	1½
Refrigerator	1¼
Shower stall	1½
Sinks	
(a) flushing-rim with valve	3
(b) kitchen, domestic type	1½
(c) pot, scullery	1½
(d) service, with P-trap	2
(e) service, with trap-standard	3
(f) surgeon's	1½
Urinals	
(a) blow out, pedestal, or siphon jet type	3
(b) stall	2
(c) wall	1½
Wash basin	1¼
Wash sink, circular or multiple	1½
Water closet	3
Beer Dispenser	1½
Dead fish tank	1½
Domestic washing machine	1½
Dish washer commercial	2
Potato and vegetable washer and peeler	2
Glass washer commercial	2
Cocktail mixing unit	1½

Table 19

SIZES OF HORIZONTAL BRANCHES

Column 1	Column 2
Branch piping, trade size, in inches	Maximum load, in fixture-units
1-¼	2
1-½	3
2	6
2-½	12
3	30
4	160
5	360
6	620
8	1400
10	2500
12	3900
15	7000

Table 20

SIZES OF STACKS NOT EXCEEDING 3 STOREYS

Column 1	Column 2
Pipe, trade size, in inches	Maximum load, in fixture-units
1-¼	3
1-½	4
2	10
2-½	20
3	50
4	240
5	540
6	960
8	2200
10	3800
12	6000

Table 21

SIZES FOR STACKS MORE THAN 3 STOREYS

Column 1	Column 2	Column 3
Stack, trade size, in inches	Maximum total load for stack, in fixture-units	Maximum load at 1 storey in fixture-units
1¼	3	2
1½	8	3
2	24	6
2½	42	9
3	60	16
4	500	90
5	1100	200
6	1900	350
8	3600	600
10	5600	1000
12	8400	1500

Table 22

SIZE OF PIPING FOR TRAP VENTS

Column 1	Column 2
Trap, trade size, in inches	Vent-pipe, trade size, in inches
1¼	1¼
1½	1¼
2	1½
2½	1½
3	1½
4	1½
5	2
6	2
over 6	3

Table 23

MAXIMUM LENGTH OF VENTS

Column 1	Column 2
Pipe, trade size, in inches	Maximum length, in feet
1-1/4	50
1-1/2	50
2	60
2-1/2	80
3	100
4	150
5	200
6	250

Table 24

STANDARD TRADE SIZES AND CROSS-SECTIONAL AREAS OF VENT PIPES

Column 1	Column 2
Pipe, standard trade size, in inches	Cross-sectional area, in square inches
1-1/4	1.2272
1-1/2	1.7671
2	3.1416
2-1/2	4.9089
3	7.0686
4	12.5664
5	19.6350
6	28.2743
7	38.4845
8	50.2655
9	63.6173
10	78.5398

Table 25

MAXIMUM HYDRAULIC LOAD FOR BUILDING DRAINS OR BUILDING SEWERS

Column 1	Column 2	Column 3	Column 4	Column 5
Drain or sewer pipe, trade size, in inches	Maximum load for slope of 1/16 inch, a foot of run, in fixture-units	Maximum load for slope of 1/8 inch a foot of run, in fixture units	Maximum load for slope of $\frac{1}{4}$ inch a foot of run, in fixture-units	Maximum load for slope of $\frac{1}{2}$ inch a foot of run, in fixture-units
4		180	216	250
5		390	480	575
6		700	840	1000
8	1400	1600	1920	2300
10	2500	2900	3500	4200
12	3900	4600	5600	6700
15	7000	8300	10000	12000

Table 26

MINIMUM SIZES OF WATER SUPPLY
PIPES TO FIXTURES

Column 1	Column 2
Fixture	Pipe, trade size, in inches
Bath tub	1/2
Combination of sink and laundry tray	1/2
Dish washer, domestic type	1/2
Drinking fountain	3/8
Hose connection	1/2
Hot water boiler	1/2
Laundry tub, 1,2, or 3, compartments	1/2
Shower, single head	1/2
Sink	1/2
Urinal	1/2
Wash basin	3/8
Water closet, tank type	3/8
Water closet, flush-valve type	1

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LEGISLATION & REGULATION SECTION
MINISTRY OF THE ENVIRONMENT